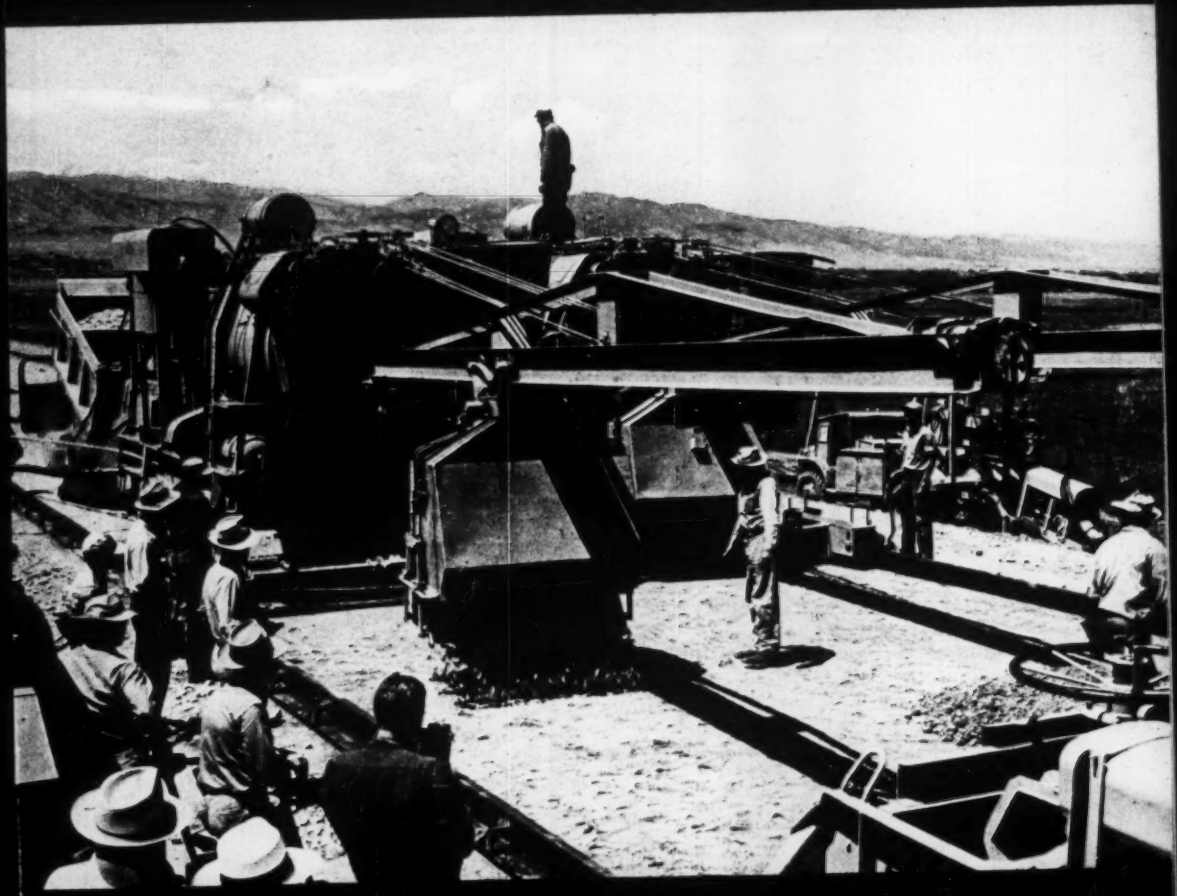
ENGINEERING NEWS-RECORD



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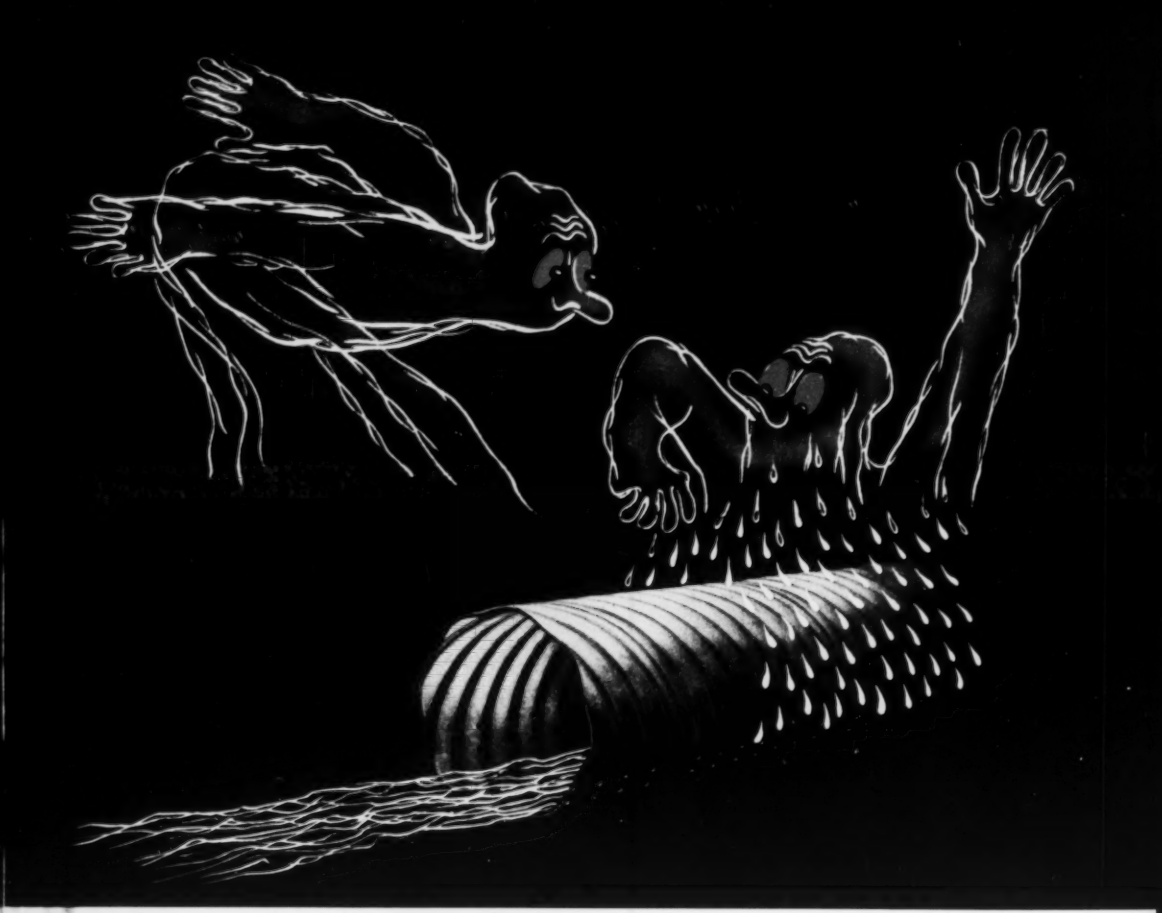

Ghosts and buried rain

The spectre of continuing high maintenance expense used to haunt officials of highways, railroads and airports. Usually the underlying cause was unseen and often unsuspected water lurking in the subgrades.

To banish this water permanently and economically, Armco engineers developed HEL-COR Perforated Pipe.

Made on automatic machines, this pipe meets all the needs of a first class subdrainage system. It is low in cost, easy to handle, and durable. It has ample corrugated metal strength to withstand shifting soils, frost action or the impact and vibration of heavy loads. Scientifically placed holes provide controlled infiltration areas to collect unwanted water. Subgrades become dry and stable: maintenance costs go down.

Providing better products to meet specific needs has been standard practice at Armco for more than 40 years. A few examples are Spiral Welded Pipe, FLEX-BEAM Guardrail, STEELOX Buildings and MULTI-PLATE Bridges.

Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research facilities, and a real interest in helping you solve these problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

ARMCO DRAINAGE & METAL PRODUCTS, INC.

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SUBSIDIARY OF ARMCO STEEL CORPORATION

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TULLY AND DI NAPOLI, INC., of Corona, New York, is one of the largest general contractors in the New York area. They operate a fleet of 4 tractors, 4 low-bed trailers, 38 dump trucks, 9 scrapers, 17 automobiles and 14 station wagons, in addition to their 18 shovels, 16 truck cranes and other construction vehicles. The tires they use on these vehicles get extra punishment from sharp rocks and slag.

Long a user of BFG tires, they are particularly well pleased with the *all-nylon* Rock Logger truck tires. Since the purchase of their first set of 8, they have found that these all-nylon tires have 40% more mileage than similar tires without this nylon construction feature.

B. F. Goodrich tires were chosen by this firm because of their superior ability to withstand severe shocks and to resist cutting. They have this greater bruise resistance because they are built with the patented B. F. Goodrich *nylon shock shield*. Strong, elastic layers of nylon are built in between the tread rubber and the cord body. Under impact, these cords work together . . . absorbing and distributing the shock evenly. This special feature is found in all BFG tires of 8 or more plies at no additional cost. They have greater cut resistance because of special tread compounds.

See your local B. F. Goodrich dealer. Let him show you how you can get better service and lower operating overhead for every kind of off-the-road operation. *The B. F. Goodrich Company, Akron, Ohio.*

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ENGINEERING NEWS-RECORD

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Volume 147 DECEMBER 6, 1951 No. 23

WALDO G. BOWMAN
Editor

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Another Northwest in Rock! — and did you ever notice how many Northwests you see in rock?

It has everything a real Rock Shovel needs and when you have a real Rock Shovel you never have to worry about output in any kind of digging.

The Dual Independent Crowd — independent plus automatic — utilizes force other shovels waste. Cast steel machinery bases and machinery side-frames keep shafts in alignment and reduce wear on bearings under the strain of rock digging. The Cushion Clutch eliminates the effect of shock overload on parts under power. The "Feather-Touch" Clutch Control increases output by assuring easier operation and the *feel of the load* when handling the "big ones". These are just a few of the advantages you won't find on other shovels — just a few of the features that will make more money for you in the heart of your job. Plan ahead to have a Northwest for your *Key Spots*. Let us tell you how.

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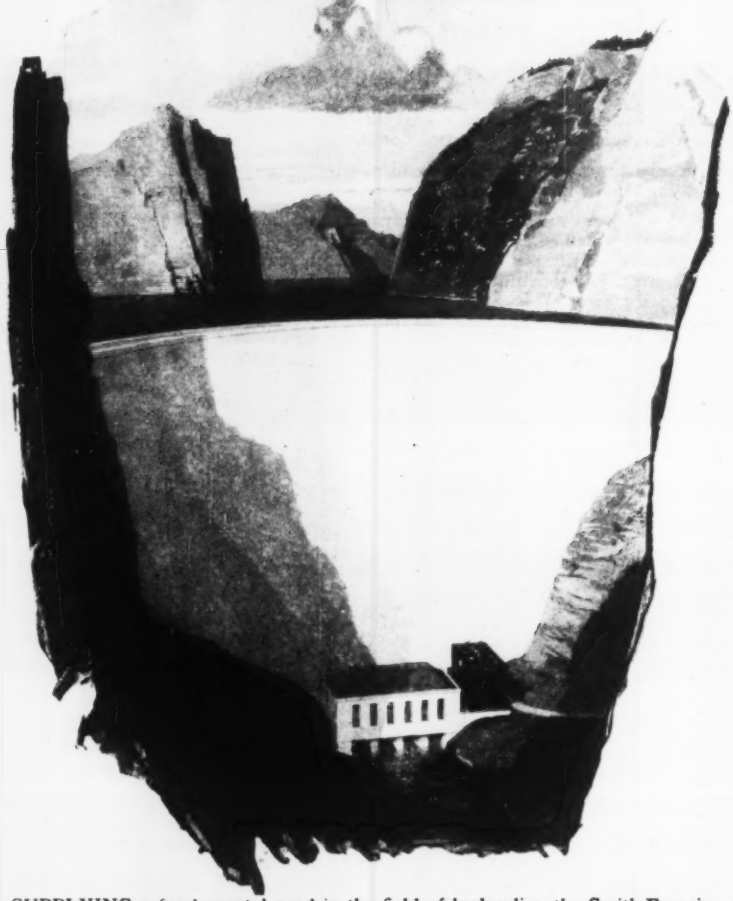
FRANCIS TURBINES



SUPPLYING a fundamental need in the field of hydraulics, the Smith-Francis Turbine has been in the forefront of the industry for many years. It is ideal for that long range of heads existing between the lower medium and very high. Completely described in a new Bulletin No. 152—just off the press! Write for your copy NOW!

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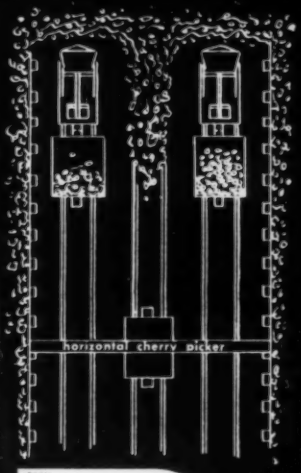
POWER *by* SMITH

CASE HISTORY OF A SUCCESSFUL TUNNEL JOB

FROM THE EIMCO FILE T231

WINGOHOCKING TUNNEL

A horizontal cherry picker was used in car switching. The empties came in on the center track and were moved in behind the loader as it brought out its load.



The Wingohocking flood control tunnel in Philadelphia, Pa. was driven 14 feet high and approximately 25 feet wide. Three tracks were laid parallel and two Model 21 RockerShovels were used on the outside tracks to clean up about 90% of the muck, then one machine was placed on the center track to finish up.

Eimco, alone, makes a full range of sizes in rock loading equipment. A size for every job. Eimco's can work efficiently in tunnels only 5½ feet high or other models do a fast, efficient job in large highway, hydroelectric or railway tunnels.

These rock loading machines are versatile. They may be moved easily from place to place or adapted to any system of track layout where track rolling equipment is used. The air powered models will work efficiently on lower air pressures in remote sections of the underground workings. This feature is especially necessary in long tunnels driven with no intermediate openings.

Large tunnels have also been loaded out effectively with multiple small units covering the face with a system of two or three tracks.

Eimco's pioneering experience in the field of rock loading makes it possible for them to build better, more dependable machines. Call Eimco before you select your equipment.

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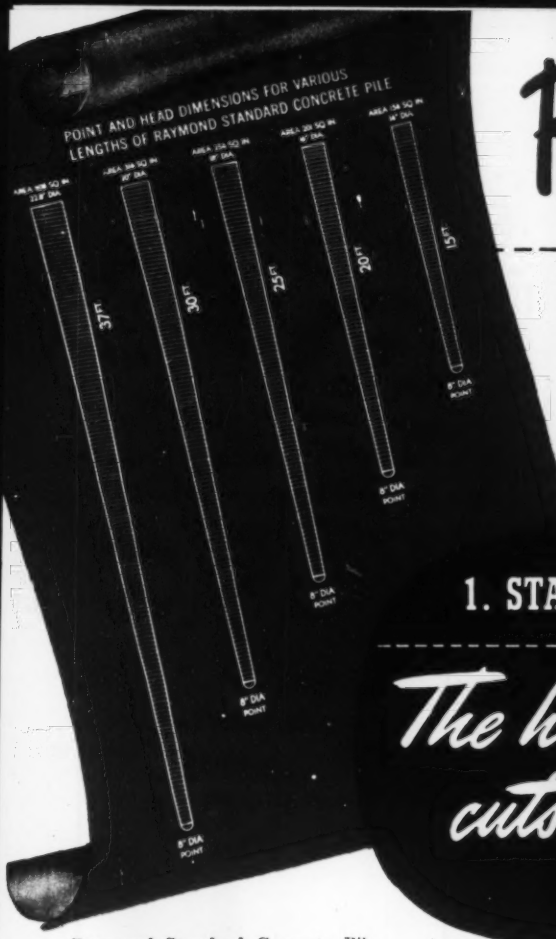
AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

Raymond MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD
2. STEP-TAPER
3. PIPE STEP-TAPER
4. COMPOSITE
5. GOW CAISSONS

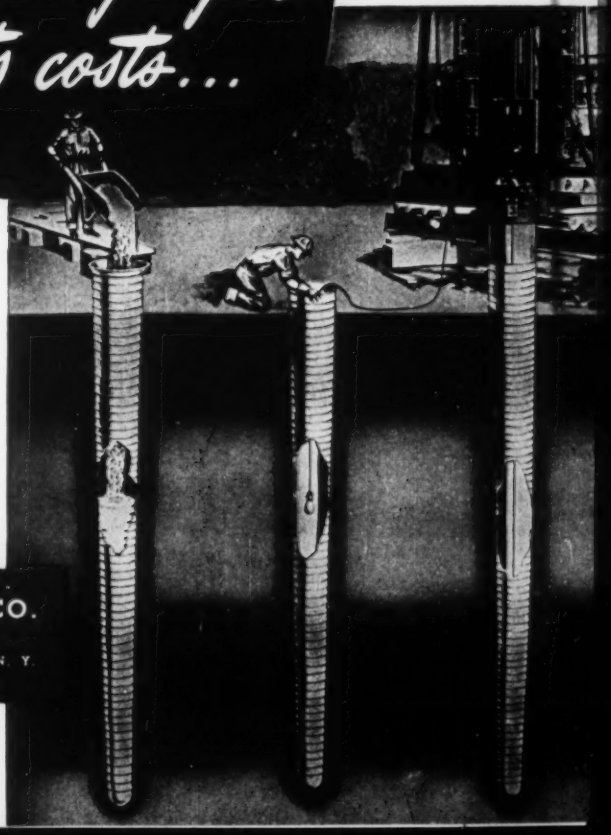
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.



1. STANDARD PILES

The heavy taper cuts costs...

Note that the permanent steel shell maintains the soil pressure developed during driving and while the concrete is setting, thus insuring a perfect pile free from distortion with a high load capacity.



Raymond Standard Concrete Piles have a heavy, uniformly tapered permanent steel shell. On friction piles, this taper acts like a wedge, giving these specific advantages:

1. Driving resistance is maintained.
2. The load is transmitted to the soil through the entire length of the pile.
3. The load can be carried by shorter piles, because of their greater carrying capacity.
4. Since shorter piles cost less to drive, the taper usually results in substantial savings.

Each of these statements has been tested and proved innumerable times. The evidence is at your disposal at any of our offices. Your inquiry is cordially invited.

Raymond CONCRETE PILE CO.

140 CEDAR ST., NEW YORK 6, N. Y.

BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

Use the New Numbering System When You Specify Bars

Bethlehem Reinforcing Bars are now identified by numbers from 2 to 11, in accordance with Simplified Practice Recommendation R 26-50 of the U. S. Dept. of Commerce. Each number indicates approximately the eighths-of-an-inch in the nominal diameter of the bar.

Bars #9, #10 and #11 are equal in weight and nominal area to the old type 1 in., 1⅛ in. and 1¼ in. square bars. Except in the case of the #2 plain round bar, the numbers are branded at regular intervals on each deformed bar.

Bethlehem Bars are rolled as round sections. Because no change has been made in either the standard unit weights or nominal cross-sectional areas, you do not need to alter any design practice.

Only new-billet steel meeting ASTM Specification A15 goes into the improved Bethlehem Reinforcing Bar. The bar provides a firm anchorage in concrete because its high, closely-spaced lugs meet the deformation requirements of ASTM Specification A305. These alternately-sloped lugs minimize slips at working loads and help prevent wide tensile cracks in the concrete.

Specify the Bethlehem Bar for your next concreting job. And as a reminder to use the new bar numbers, send for our reinforcing bar descriptive sheet. Ask the nearest Bethlehem sales office for your copy. Or write us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM
REINFORCING BAR

MADE FROM *New-Billet Steel*

3 4 5 6 7 8 9 10 11

BETHLEHEM REINFORCING BARS

NEW BAR NUMBER	2	3	4	5	6	7	8	9	10	11
OLD SIZE	¼ in. plain round	⅜ in.	½ in.	⅝ in.	¾ in.	⅞ in.	1 in.	1⅛ in.	1¼ in.	1⅜ in.
Nominal Area (Sq. In.)	.05	.11	.20	.31	.44	.60	.79	1.00	1.27	1.56
Nominal Round Diam.	.250	.375	.500	.625	.750	.875	1.000	1.128	1.270	1.410

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BETHLEHEM STEEL

BETHLEHEM REINFORCING BARS

REAR-DUMPS
average 375 yds. dirt hourly on 3-mile cycle through traffic

...speed completion of the 24-ft. sub-grade for 2.8 miles of Rt. 103 along Lake Sunapee, Frank Whitcomb worked Tournarockers well into the winter.

Frank W. Whitcomb Construction Corp. of North Walpole, New Hampshire, had a lot of solid rock in the 245,000 yds. of excavation they handled on relocation of 2.8 miles of Rt. 103 near Newbury. Even the common earth was hard to handle because of large boulders. Hauls were long . . . averaging 1½ miles one-way over existing highway through heavy, open traffic.

Load 10 pay yds. of broken rock . . . up to 15 loose yds. common earth

To speed production under these tough conditions, Whitcomb assigned most of the difficult hauling to 2 high-speed, rear-dump, 16-ton C Tournarockers. Teamed with a 1½-yd. shovel, each "C" carried 10 pay yards of high-void broken rock per load . . . up to 15 loose yards of common earth per trip . . . made a 3-mile cycle of load, haul, dump and return every 18 to 19 minutes. In a typical 9-hour day, each Tournarocker delivered 25 loads over rutted, steep ground to the dump . . . in a 7-hour day on this length haul, figures show each "C" moves 18 to 19 loads. That's a total average production for the 2 high-speed rigs of 51 to 56 pay yards of rock per hour . . . 75 to 80 loose yards of common earth per hour.

"We're very well satisfied," says Supt. John T. Fox. He also stated that Tournarockers were about 95% efficient under these difficult job conditions.

NEW C Tournarockers now have 18-ton body increasing capacity by 12½%. Prime movers with Tournamatic transmission and torque converters are also available, as well as the "Roadsters" with their heavy-duty, sliding-gear transmission. Performance figures reported on the Whitcomb job were made with earlier 16-ton Roadster units.

Electrical induction heating of 'Rocker body allowed fast, free dump even in sub-zero weather. Other machines, unheated, had to be cleaned out by a small pull shovel.

Tournamatic - Trademark Reg. U. S. Pat. Off.
Tournarocker - Trademark R2438

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HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

EXCEPTIONAL PERFORMANCE on mobile equipment

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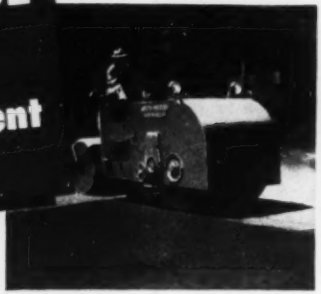
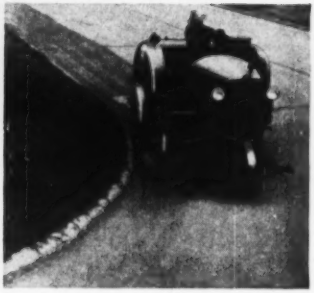


Austin-Western Tandem Roller



Austin-Western Model "40" Motor Sweeper

. . . that's why

Austin-Western *uses* VICKERS VANE TYPE PUMPS

Here are some of the reasons for the outstanding performance of the Vickers mobile equipment pump shown below . . . reasons that influenced its selection as the source of hydraulic power for Austin-Western road machinery.

Vickers Balanced Vane Pumps (single) for mobile machinery are made in 10 sizes having delivery ratings from 3.2 to 52 gpm @ 1000 psi and 1800 rpm. Higher pressures and/or speeds also possible. Several mountings and four optional positions of pressure outlet connection. Also available in double pump combinations.

1. Compact, high-efficiency design with many choices of pump size and mounting arrangement SAVES SPACE and also provides INSTALLATION SIMPLICITY.

2. Pump does not load up until engine is up to speed, for EASY COLD WEATHER STARTING.

3. All running clearances automatically maintained as pump wears; PERFORMANCE DOES NOT DROP OFF WITH WEAR.

4. Exclusive hydraulically balanced design neutralizes oil pressure loads on bearings, providing LONG LIFE WITH NO ADJUSTMENTS.

5. Rugged construction makes Vickers mobile equipment pumps TOUGH.

For further information get in touch with the nearest Application Engineering office or write to Detroit for Catalog M-5100.

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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Ask for NEW CATALOG M-5100

4545

NEWS BRIEFS

• **Electrolysis trouble**—Electrolysis is giving the Seattle, Wash., water department trouble on one of its supply lines. Current—probably direct—is entering the steel bands on one side of a 52-in. wood stave pipe and leaving at the other, taking with it the metal, weakening the bands until finally they separate and allow the unrestrained wood staves to burst. The same thing has happened to steel pipes on that line. As the metal sloughs away because of electrolysis, a pinhole finally results in a break. The city has an electrolysis engineer seeking to determine the source of the current that is causing the damage to the water supply line.

• **Bridge steel bargain**—For an outlay of about $23,000 the Virginia highway department will get structural steel worth several times that amount. This windfall will come to the department when the federal government replaces a bridge that lies in the area of the Buggs Island Dam. The Corps of Engineers let the State Highway Department submit an offer for the steel in the present bridge, consisting of six spans, each 150 ft long.

• **Lime trough accidents**—Arizona Consolidated Masonry and Plastering Contractors Association has acted to prevent lime trough accidents—after a three-year-old Phoenix girl suffered severe facial burns and damage to her eyes. She fell into a lime trough left at a construction site. Contractors have agreed not to leave lime or other caustic chemicals in open containers at unguarded building sites. Members of the association voted to work out a method of fitting tight covers to mortar boxes during nonworking hours.

• **South Carolina roads**—Since World War I construction contracts let by the South Carolina Highway Department have totaled $109,250,810. There are 22,646 miles of roads in the system.

• **Deadline for Wisconsin engineers**—Dec. 31, 1951, is the deadline for engineers to register under the "grandfather clause" of the Wisconsin registration act. Unless a practicing engineer is registered by that date, he will be required to take examinations in order to practice his profession in the state, R. W. Smeaton, Milwaukee registration promotion chairman for the Wisconsin Society of Professional Engineers, has pointed out.

• **Laminated timber spans**—A new design of trusses which is a result of some ten years study with models and extensionometers and a new glue-spreading machine invented in Australia are credited with having shortened the time of construction, saved scarce labor and steel which is in very short supply in the island continent. Malcolm S. Stanley, a Sydney structural engineer, and one of the pioneers of glued laminated timber construction in Australia was responsible for the new design of the trusses. These are being made on the job and in the recent construction of a large wool depot many of these glued laminated timber arches, each with a 99 ft. span, were used with complete success. Spans of up to 140 ft. of this design have been used.

• **Arizona gets steel**—Arizona has averted a bridge steel shortage through receipt of an allotment of an additional 627 tons of the critical metal for the three-month period ending Dec. 30. The increase brings the total allotment to 931 tons, only 69 short of the state highway department's needs. Earlier Cy Perkins, state highway engineer, had indicated that lack of steel would force substitution of the dip method of spanning dry washes. The state has started an extensive program of bridging dry washes after recent storms which washed out many dips and tied up traffic over the state.

• **Another mink story**—Five members of a Saskatchewan department of highways road gang have been ordered by a provincial appeals court to pay a mink farmer $3,860 damages because the noise of road machines disturbed his female minks during the whelping season so that they destroyed their young. The court ruled "A public employee must be subject to the common law relating to negligence to the same extent as any other individual and is personally responsible if he fails to take reasonable care to avoid injury."

• **Heated by lot**—Consumers Power Co., Jackson, Mich., which recently received federal and state approval to add 10,000 additional gas space heating customers, is planning to hold lotteries in its various divisions to determine which applicants will get service, since the number of applications is greater than the allocations.

It takes a lot of scrap to make steel—How about yours?

(Continued on page 14)

EFFICIENCY UP...

Photo Courtesy Schramm, Inc.

COSTS DOWN...

TUNE IN . . . TEXACO
STAR THEATER
starring MILTON BERLE
on television
every Tuesday night.
METROPOLITAN OPERA
broadcasts every
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TEXACO

. . . when you use Texaco air compressor oil

EFFICIENT, economical air compressor operation requires an oil that is *exactly right* for your particular operating conditions. To meet this requirement you have only to use the recommended Texaco air compressor oil. A Texaco Lubrication Engineer will gladly help you.

- Under normal conditions, a Texaco *straight mineral* air compressor oil will assure clean operation, minimum wear, lower maintenance costs.
- Under conditions causing rust in cylinders, coolers, lines and receivers, a Texaco *rust-inhibited* air compressor oil will keep compressors and systems rust-free whether running or not.
- Where service conditions are extremely severe, a Texaco *heavy-duty* air compressor oil will prevent harmful formations of carbon and sludge.
- To combat excessive wear under "wet cylinder" conditions, a Texaco *compounded* air compressor oil will keep wear at a minimum.

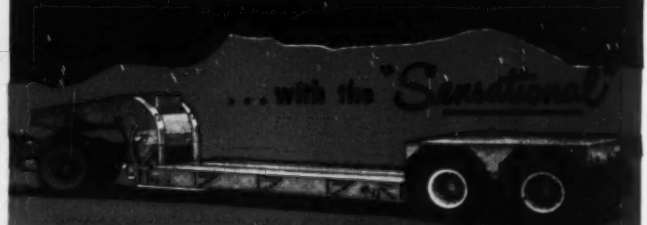
Call in a Texaco Lubrication Engineer. Let him tell you about the Texaco Simplified Lubrication Plan that will let you handle *all* your major lubrication with *only six* Texaco lubricants. A time-saving, cost-saving setup. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N.Y.

LONGER DRILL LIFE, more footage drilled, lower costs — count on these benefits when you use *Texaco Rock Drill Lubricant EP*. This series of "extreme pressure" lubricants give full protection against wear, guard against rust whether drills are running or idle.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

LOAD, HAUL and UNLOAD
MORE Heavy Equipment IN LESS TIME



ROGERS TYPE "TPG" Power Lift
DETACHABLE GOOSENECK

● Versatile performance features plus well known Rogers quality construction embodied in work tested design, puts the Type "TPG" Power Lift Detachable Gooseneck Trailer in a class by itself for an "all purpose" single unit.

If you contemplate the purchase of a new trailer, by all means investigate this increasingly popular model. Write for literature today.

Features

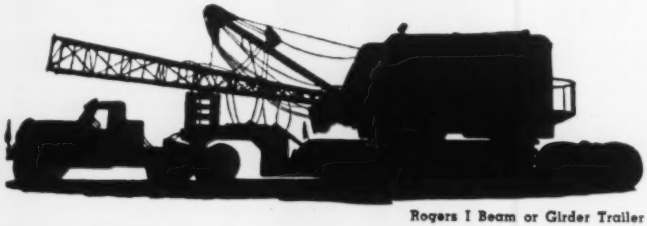
5 EXCLUSIVE ADVANTAGES

1. **Carries heavier loads on larger tires.**
2. **Detaches quickly for fast, easy front loading.**
3. **Stoops to clear low overhead obstructions.**
4. **Raises its deck to clear high banked crossings.**
5. **Is detached, loaded and reattached in 5 minutes.**

THE ROGERS *Power Lift* DETACHABLE GOOSENECK **CAN BE OBTAINED ON ANY STANDARD ROGERS DROP DECK TRAILER**

EXPERIENCE *builds 'em* — PERFORMANCE *sells 'em*

ROGERS BROS. CORP.
ALBION, PENNA.



Rogers I Beam or Girder Trailer

News briefs . . .

• **Alaska military construction** – At present more than 9,000 persons are engaged in the military construction program in Alaska, according to Col. L. E. Seeman, Alaska district engineer for the Corps of Engineers. Of this total, 7,885 men are employed by 51 contractors and 1,184 are civilian employees of the Corps of Engineers. This construction season, now drawing to an end as cold weather nears, saw work started or completed on 114 contracts. An estimated 1,800 Pacific Northwest and West Coast architects and engineers were employed on 65 architect and engineer contracts issued by the district. At the peak of the season, 2,000 men were housed in tansient quarters at Anchorage and 1,900 at Fairbanks and nearby Eielson Air Force Base.

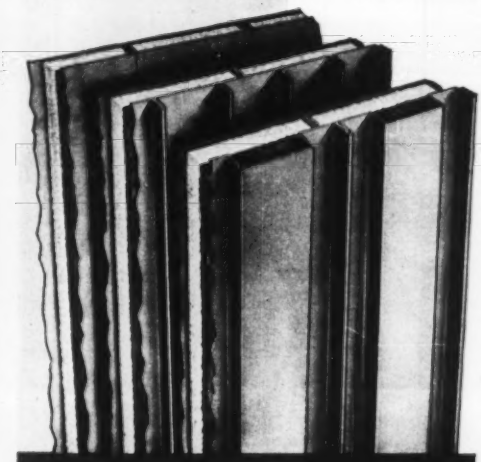
• **Large fill**–The contract for what may be one of the largest highway fills in the United States has been let to the Carlton Contracting Co. for $369,980 by the Alabama Highway Department. The fill will be on the new Lacon-Vinemont sector of the Bee Line Highway and will require about 1,000,000 cu yd of dirt and rock. The project is to fill the 145-ft deep gorge and will extend for about 550 ft. Agreement on this type of fill settles a long controversy regarding the best method of extending the highway over this obstacle.

• **New freight yard at Morrisville**– The Pennsylvania Railroad has announced plans to spend $9,000,000 on expanding and modernizing its freight yards at Morrisville, Pa., in anticipation of the industrial development of the Trenton-Morrisville-Bristol area which is expected to follow completion of the new Fairless Works of U. S. Steel. The project includes the removal of 27 miles of existing track, the relocation of 14 miles of track, the laying of almost 30 miles of new track, the installation and relocation of 367 turnouts, 200,000 cu yd of cut or fill for grading purposes, and the spreading of 125,000 cu yd of ballast. In addition, the railroad plans to erect engine houses, shops, storerooms, fuel storage tanks, a 125-bed dormitory building, a cafeteria for train and engine crews, switch and signal towers and a yardmaster's office. The initial contract for track work has been awarded to Lawrence E. Pilot & Sons of Philadelphia. The work will be under the general supervision of L. P. Struble, chief engineer of the Pennsylvania Railroad's Eastern Region. The resident engineer will be C. L. Towle.

INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS

ALUMINUM, STAINLESS or GALVANIZED STEEL



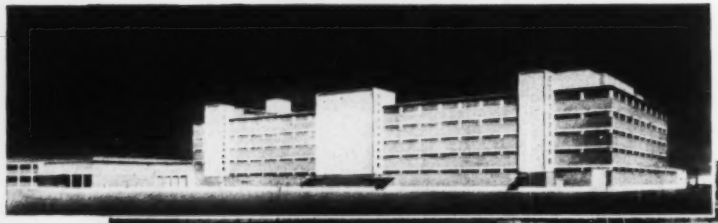
FLUSH, RIBBED, or FLUTED
Over-all "U" Factor of Various Types is Equivalent to or Better than Conventional 16" Masonry Wall

Here is another complete industrial plant in which Mahon Insulated Metal Walls were employed to advantage . . . further evidence of the trend in design of modern industrial and commercial buildings. In this particular plant, all exterior wall surfaces, coping, flashing, etc., are Aluminum. Wall plates are one piece from top to bottom—no horizontal joints. Mahon Insulated Metal Walls, with an over-all "U" Factor equivalent to a conventional 16" masonry wall, are available in three distinct patterns shown at left. Walls of the "Field Constructed Type" may be erected up to 50 Ft. in height without horizontal joints. Mahon Prefabricated Insulated Metal Wall Panels, ready for rapid erection in the field, can be furnished in any length up to 30 Ft. These Mahon Insulated Metal Walls, together with a Mahon Steel Deck Roof, provide the ultimate in economy, permanence, and fire-safety in modern construction. See Sweet's Files for complete information including Specifications, or write for Catalog No. B-52-B.

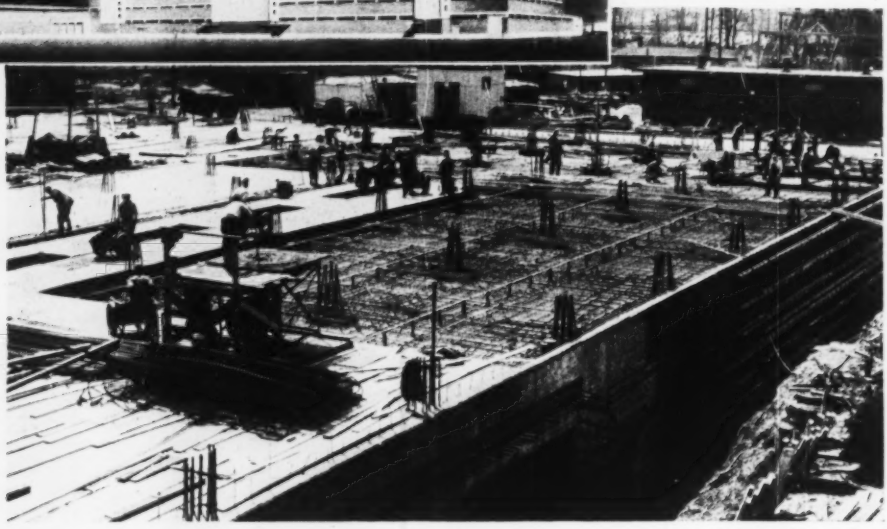
THE R. C. MAHON COMPANY

Detroit 34, Mich. • Chicago 4, Ill. • Representatives in Principal Cities

Manufacturers of Insulated Metal Walls; Steel Deck for Roofs, Floors and Partitions; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



Abbott Laboratories' big new manufacturing addition in North Chicago, Illinois. Naess & Murphy, Architects. John Griffiths & Son Construction Co., Contractors. Construction steels including Hi-Bond reinforcing bars from Joseph T. Ryerson & Son, Inc.



Ryerson Reinforcing Service Helps Build New Drug Plant

Here Ryerson construction steel service will help keep the nation healthy. Reinforcing bars, cut and bent to specification, spirals, wire fabric, reinforcing accessories—all are being shipped from Ryerson stocks to complete this big drug products plant addition on schedule.

When originally contracted for, before Korea, supplying such a job was routine at Ryerson. But today, peak demand for steel has drastically reduced our stocks of reinforcing materials. So we can't handle every construction steel order and inquiry, much as we would like to.

However, when we *can* meet your requirements, we're able to take over the complete job from setting diagrams and bending details to dependably scheduled deliveries. Every bar is permanently identified with a metal tag for easy placement. And all Ryerson reinforcing bars meet or exceed the new ASTM specifications for height and spacing of ribs.

So, despite shortages, we suggest you call us when you need reinforcing steel service. We'll do our best to help you.

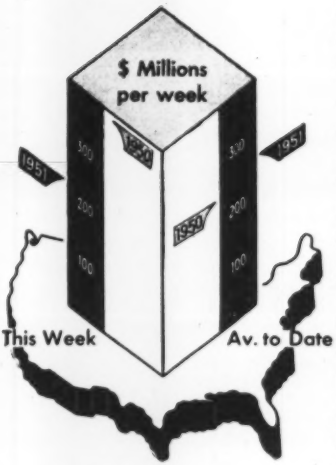
PRINCIPAL PRODUCTS

REINFORCING—Bars, wire fabric, spirals, etc.
STEEL FORMS—For concrete joist construction.
STRUCTURALS—Channels, angles, beams, etc.
PLATES—Many types including Inland Safety Plate.
BARS—Carbon and alloy, hot rolled and cold finished.
SHEETS—Hot and cold rolled, many types and coatings.
TUBING—Seamless and welded, mechanical and boiler tubes, structural tubing, etc.
STAINLESS—Allegheny sheets, plates, bars, tubes, pipe, pipe fittings, etc.
MACHINERY & TOOLS—for metal fabrication.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS: NEW YORK • BOSTON • PHILADELPHIA • DETROIT • CINCINNATI CLEVELAND • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 49 wks 1951	1950	% chge
Waterworks.	3.8	$199.0	$208.1	−4
Sewerage ...	3.3	314.4	276.7	+14
Bridges	8.9	303.2	354.1	−14
Highways ..	23.3	1,121.7	1,218.1	−8
Earthwork, Waterways.	20.3	492.5	408.8	+20
Buildings:				
Public	15.1	1,986.1	1,846.4	+8
Housg., pub.	3.9	598.2	316.1	+89
Housg., priv.	45.8	1,926.4	3,021.2	−36
Commercial	10.4	563.9	940.0	−38
Industrial..	139.4	4,004.0	1,584.7	+153
Unclassified .	49.9	1,570.9	1,237.6	+27
Total	**$324.1**	**$13,100.3**	**$11,411.8**	**+15**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	Dec. '51	347.67	263.26	114.81
Bldg. Cost ..	Dec. '51	405.58	219.24	115.29
Volume	Nov. '51	404	164	117

WAGE BOARD STRIKES TWICE—Announcing its second major enforcement case, the Wage Stabilization Board charged Anchor Fireproofing Co. of Washington, D. C. with overpayment of wages to 17 bricklayers at Ann Arbor, Mich. WSB says Anchor paid $2.87½ an hour instead of the $2.75 lawful rate in the area, during construction of an addition to the University of Michigan Hospital. Hearings are scheduled in Detroit this week on similar charges against the J. D. Hedin Construction Co., also of Washington, which is accused of paying $3 an hour to 60 bricklayers during construction of a veterans hospital at Ann Arbor.

REAL CUT—A new non-ferrous metals allotment order for hardware manufacturers is expected to come out of NPA by January. In November NPA sent out "feelers" to representatives of the building hardware industry for reaction to a proposed allotment for the first quarter '52. The proposal would give hardware men 10% of non-ferrous metals they used in the first quarter of 1950. The representatives submitted their explosive reaction to the allotment in a proposal made Nov. 27. Final word from NPA is expected by the end of December and if the cut stands, manufacturers of building hardware will probably start looking in the direction of steel and plastics for materials.

WATER PLAN REJECTION SEEN—The Hudson River is the future water source recommended for immediate planning to New York City by its panel of consultants. That's why the report, printed last July, has not yet seen the light of day. It calls for a direct about-face on water source policy and New York has been pondering acceptance or rejection of it. This week there was every indication on the report would be definitely and formally rejected.

CUTBACK AT GRAND COULEE—Grand Coulee power plants will have to operate at slightly less than their capacity of 2,000,000 kw this winter as the result of a slide danger on the river just below the dam which might threaten the east-bank switching yard. Bureau of Reclamation engineers have put into effect the "four-foot rule" prohibiting variation of more than four feet in water level below the dam to avert the danger.

REPLY ON COPPER—Privately the copper producers have long been chafed by National Production Authority efforts to have aluminum substituted for copper wherever possible. Last week the Primary Copper Producers' Industry Advisory Committee, meeting with officials of the NPA, lashed back. They insisted there was no likelihood that the present copper shortage would be permanent. Further they said copper supply might well be relatively better than the aluminum supply in two or three years.

CLOUDY SITUATION—When California's agricultural Santa Clara County contracted with Weather Modification Corp., Beaumont, Calif., for some $25,000 worth of rainmaking, it did not bargain for a storm of protest from construction men. Originally the cloud seeding was to begin early in November, but was postponed until the end of November to permit harvesting of late crops. Now some 120 contractors working in the county have asked postponement until late December. They say artificial rain will cost them money, slow down movement of building materials, cause loss of labor because of lay-offs, etc.

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Pumps Save Money

They're easier to get on the job . . . quicker to get into operation . . . faster in pumping out water. Fastest self-priming. 28 foot suction lift. Handles up to 15,000 gallons per hour. Keeps seepage at strainer level automatically. Non clogging. Troubleproof. Weatherproof.

HOMELITE
Generators Save Money

With a Homelite Gasoline Engine Driven Generator, you always have electric power handy any place . . . instant, steady power to operate floodlights . . . to operate standard universal electric tools or the newer high cycle tools. On the job, a Homelite soon pays for itself in the time and work it saves.

HOMELITE
Chain Saws Save Money

One man with a Homelite Gasoline Chain Saw can do the work of two men in far less time. Weighing only 27 lbs. complete with *4 horsepower engine,* a Homelite is easier to handle, cuts much faster, and needs less downtime . . . less maintenance than any other saw.

Write today for complete information on Homelite Carryable Pumps, Generators and Chain Saws.

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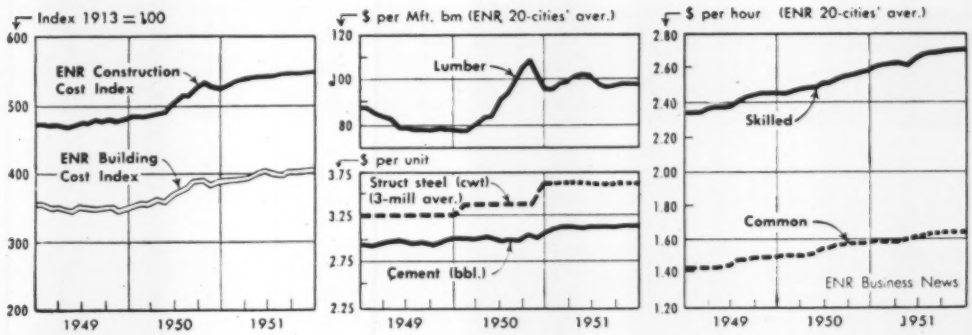
DECEMBER CONSTRUCTION SCOREBOARD

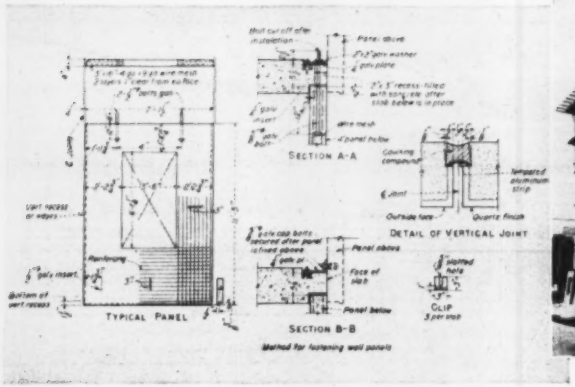


ENR INDEXES (1913 = 100)	Dec. '51	Nov. '51	% Change	Dec. '50	% Change
Construction Cost	547.67	547.16	+0.09	530.03	+ 3.3
Building Cost	405.58	404.50	+0.3	391.44	+ 3.6
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl.	$ 3.168	$ 3.168	0.0	$ 3.089	+ 2.5
Structural Steel, (3-mill aver.), per cwt	3.650	3.650	0.0	3.650	0.0
Sand, per ton	2.101	2.089	+0.5	2.042	+ 2.9
Lumber, 2x4 Fir, per M. ft. bm	106.791	107.222	−0.4	104.500	+ 2.2
Lumber, 2x4 Pine, per M. ft. bm	91.733	91.683	+0.05	91.483	+ 0.3
Common brick, per M	31.114	31.101	+0.04	29.850	+ 4.2
Ready-mixed concrete, per c. y	10.905	10.905	0.0	10.697	+ 1.9
Structural Clay Tile, 3x12x12 per M	149.662	149.662	0.0	135.248	+10.6
WAGE RATES (20-cities' average)					
Common	$1.651	$1.646	+0.3	$1.574	+ 4.9
Skilled (aver. 3 trades)	2.751	2.728	+0.8	2.577	+ 6.7
Bricklayers	3.069	3.025	+1.4	2.838	+ 8.1
Structural Ironworkers	2.690	2.683	+0.3	2.533	+ 6.2
Carpenters	2.495	2.479	+0.6	2.361	+ 5.7

CONTRACTS AWARDED (thous.)	November 1951	November 1950	% Change	Eleven Months 1951	Eleven Months 1950	% Change
Total U. S. (ENR reported)	$1,024,775	$1,012,046	+ 1.3	$12,776,190	$10,926,988	+ 16.9
Private	638,258	518,944	+22.9	6,935,984	6,321,834	+ 9.7
Public	386,517	493,102	−21.6	5,840,206	4,605,154	+ 26.8
Federal	101,747	100,510	+ 1.2	2,139,405	1,112,805	+ 92.2
ENR Constr. Volume Index, '13 = 100	404	410	− 1.5	533	480	+ 11.0
NEW CONSTRUCTION CAPITAL						
Total	$1,173,463	$787,065	+49.1	$15,334,616	$ 8,324,623	+ 84.2
State & Municipal Bond Sales	405,482	473,791	−14.4	3,225,958	2,833,716	+ 13.8
Corporate Security Sales	312,334	313,274	− 0.3	2,185,172	2,139,813	+ 2.1
Federal (non-federal work)	359,697	.....	.....	512,013	522,000	− 1.9
Federal (federal work)	95,950	.....	.....	9,411,473	2,829,094	+232.7

MATERIAL SHIPMENTS & LABOR SUPPLY	October (O) September (S) 1951	October (O) September (S) 1950	% Change	Ten Months (10) Nine Months (9) 1951	Ten Months (10) Nine Months (9) 1950	% Change
Cement, thous. bbls., Bu. of Mines	23,256(S)	22,910(S)	+ 1.5	185,377(9)	171,353(9)	+ 8.2
Fabr. Struc. Steel, thous. tons, AISC	241(O)	212(O)	+13.7	2,280(10)	1,869(10)	+21.9
Lumber, mil. ft. bm., NLMA	2,937(S)	3,637(S)	−19.2	28,539(9)	30,003(9)	− 4.9
Lumber Prod., mil. ft. bm., NLMA	3,200(S)	3,717(S)	−13.9	29,909(9)	29,329(9)	+ 1.9
Contract Constr. Employ., thous. BLS	2,738(O)	2,631(O)	+ 4.0	(Av.) 2,558(10)	(Av.)2,284(10)	+11.9

An Idea with a Future!



PANEL CONSTRUCTION OFFERS WIDE RANGE OF POSSIBILITIES

'INCOR', 24-HOUR CEMENT used in precast panels for MIAMI'S FIVE-FIFTY BUILDING

● Panel construction—lightweight aggregate or sandwich wall—is spreading rapidly.

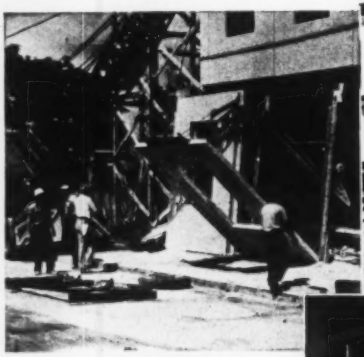
This new building in Miami has story-high, 4-in.-thick, precast wall panels of lightweight concrete, supported from floor above by bolts cast in top edge of slab. Lower edges are secured to edge of floor by angle clips. Vertical joints are closed from the back by spring-aluminum strips snapped into dovetail joints, then caulked from behind. Interior wall back-up is 2" glazed tile.

A reinforced-concrete utility shaft houses the elevators, stairs and service facilities, and carries wind-load stresses, in a structure built to withstand a 175-mph hurricane. Precast panels made spandrel walls unnecessary.

The precision-made wall panels were cast face down with 'Incor' concrete, using pumice aggregate for weight reduction—quartz aggregate and white cement for facing.

Fast, thorough 'Incor'* curing minimizes costly form requirements, assures high strength, early and ultimate . . . at lowest initial and annual cost!

*Reg. U. S. Pat. Off.



FIVE-FIFTY OFFICE BUILDING
Brickell Ave. bet. S. E. 5th & S. E. 6th Sts., Miami
Owner: **FIVE-FIFTY INC.**
Architect:
ROBERT LAW WEED & ASSOCIATES
Structural Engineers:
JORGENSEN & SCHREFFLER
Contractor: **J. Y. GOOCH CO., INC.**
Precast Panels:
MAULE INDUSTRIES, INC.
all of Miami

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The pause that refreshes

REGULAR "COFFEE STOPS" along the nation's limited-access highways have been proposed by L. S. Harris, executive director of the American Association of Motor Vehicle Administrators as a means for cutting the accident toll on those traffic arteries. Fatigue and tension have been largely overlooked, Mr. Harris says, in seeking the cause of accidents.

Drivers on regular truck routes long ago discovered the value of coffee stops. Inside any roadside diner you can find a trucker relaxing over a cup of coffee, gossiping or bantering with the counter girl. The highway and its tensions are forgotten. But only a small percentage of the automobile drivers have made the same discovery. Most of them still put too high a value on the 10 or 15 minutes they save by not stopping now and again.

Builders of a few limited-access highways have taken steps to encourage such relaxation, notably the Pennsylvania Turnpike Commission with its attractive restaurants at service stations.

Now the New Jersey Turnpike Authority has gone a step farther in giving its service areas even more of the character of rest centers. Wherever the terrain permits, they are set well back from the turnpike's roadways where the whir of passing vehicles is dimmed. Also the service buildings and parking areas are spread out to encourage people to walk around during their stay.

This is a desirable development. Such fanned-out service areas cost more to build and maintain, but they may well pay large dividends in accident reduction.

Let utilities develop Niagara power

THE NEW YORK STATE UTILITY COMPANIES who have offered to pool their credit and resources to build the much-needed hydro power facilities at Niagara Falls have a strong case. It is, in fact, so strong that the proposal can only be turned down by a direct admission on the part of the federal government that private development of hydro power is no longer to be allowed.

Such an admission has so far been avoided for two reasons. In the first place, the constitutional authority for such a policy is highly questionable. Moreover, the public power advocates have been able to get everything they wanted by developing power as an adjunct to irrigation, navigation or flood control over which federal authority has been definitely established. None of these props is available at Niagara. Here the issue is solely one of power.

Some claims have been made that the federal government set a precedent for dealing with power alone on Chief Joseph Dam on the Columbia River. That is not the case, although it is a fact that this project squeaked through with a multiple-purpose rating by the slimmest possible margin—an almost microscopic aid to irrigation and slackwater in the reservoir for improbable navigation being the "extras".

But no such opportunities for subterfuge exist at Niagara. And only those who prefer government socialism to a private enterprise economy would look for any others.

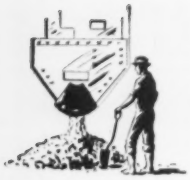
Using public funds to build facilities that private enterprise is willing and able to provide is seldom, if ever, in the national interest. Congress, at the first opportunity, should take this national interest into account, and deal the federal government out on the Niagara power development. The state of New York should do likewise on the grounds that using tax money to build facilities that will not return any taxes—as will a private project—is not good state business. Moreover, integrating the present private plants with new public facilities would be difficult and inefficient. Additional power at Niagara Falls is a job that the thoroughly experienced and financially able private utilities in New York State should be permitted to undertake.

Tougher airfield pavements

MARKED DEPARTURES from traditional highway design practices are in prospect in the design of airfield pavements. Support for this conclusion is found in the remarks of L. S. Palmer, principal engineer of the Bureau of Yards & Docks, at the recent meeting of the American Society of Civil Engineers. Mr. Palmer said there is great need for tougher pavements and for pavements that will stand up under the high shear that is developed suddenly when the heavy planes of today are set down on runways. New problems also are introduced by fuel spillage and heat from jet engines.

Pavements on the early airfields in this and other countries were designed on the basis of experience gained in highway work. But experience in operating the fields with bituminous surfacing soon demonstrated that a different type of bituminous mix was needed on a runway where the passage of loaded wheels would be much less frequent than on a highway. The regular kneading to which highway pavements were subjected kept the asphalt surfacing alive. On a runway this kneading is not present, so that the material became brittle and frequently cracked and broke up.

With that discovery, runway design thinking began to depart from traditional highway-pavement design methods. Today, with the advent of much heavier wheel loads and jet planes, that thinking appears to have moved runway design far enough away from highway surface design to make it a separate science.



Better for paving work

Less mixing water is needed for a given slump with Atlas Duraplastic air-entraining portland cement. The mix is more workable, more plastic, more cohesive and more uniform. It dumps, spreads and finishes easily. In addition, it permits finishing closer to the paver; gives earlier protection for curing.

Makes more durable concrete

Concrete made with Duraplastic is fortified against the effects of freezing-thawing weather. That's because Duraplastic minimizes bleeding and segregation; makes the concrete highly resistant to the scaling action of de-icing salts. (Below: Atlas Duraplastic Concrete being poured for a section of highway. Note cohesiveness and uniformity of mix.)

[redacted] YET DURAPLASTIC* COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ATLAS®

DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

A UNIVERSAL ATLAS PRODUCT

Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

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ENR-D-1278

New DPA group to sift steel needs

Experts will screen structural allotments for quantity and timing in construction

Quietly and without fanfare, six men who compose the Construction Analysis Group were ushered into office in Washington last week to help the Defense Production Administration winnow some of the chaff from its structural steel allotment schedules.

The men were hand-picked by a committee of steel industry executives and recommended to Defense Mobilizer Charles E. Wilson last October—just after DPA had reported demands for heavy structural shapes for all end uses during the fourth quarter this year and the first quarter of next were equal to about 223% of the available supply.

The analysts' assignment is to cut down excessive requests for structural steel. They will sort out those projects that will not be ready to use all or part of steel during the quarter when the allotment has been asked.

In DPA organization, the analysts will fit in between the claimant agencies which screen requests to decide which are essential and the requirements committee which makes the final decision on distribution of materials.

• **What they will do**—Under their scrutiny will come all requests for structural steel for construction that have been approved by claimant agencies. They will question these requests in relation to the status of each project.

Here is what the analysts will ask: Will the site be ready for this quantity of structurals when they arrive? Will plans in the drafting room be ready when the structurals ordered arrive?

Depending upon the answers received, they will pass the request on, trim it down to a more realistic size, or reject it entirely. In this way all requests will be brought into better focus before they reach the requirements committee.

Some claimant agencies, heavily staffed with engineers, already are applying these yardsticks against allotment requests. Others, with little engineering aid on their staffs, have less perspective on quantity and timing of requests. These will get more assistance from the analysts.

• **Who they are**—Named to serve on the Analysis Group are: James B. Steep, consulting engineer, Detroit, director; Gordon W. L. Galloway, The Austin Co., Los Angeles; James Hamilton, American Bridge Co., Pittsburgh; Herbert J. Hess, Bethlehem Steel Co., Fabricated Steel Division, Baltimore; Howard Mullen, U. S. Steel Co., St. Louis; Robert E. Wilmot, Bethlehem Steel Co., Bethlehem, Pa.

They are serving full-time and are fully staffed to do a job the steel industry has insisted must be done and which construction organizations have unofficially endorsed.

• **Protests brewing**—Appointment of the Analysis Group came at a time when construction industry protests against present controls policies are beginning to reach the boiling stage.

Last week in Washington, the 23-man Committee on Construction Mobilization of the U. S. Chamber of Commerce met to discuss the Controlled Materials Plan, allocations to construction and the steel shortage.

The result of their meeting was a call to convene during February in Washington the Construction Industry Advisory Council, composed of representatives from 109 national organizations in the construction industry to consider these problems of the industry and make specific recommendations.

No formal recommendations were made at the committee meeting, but the consensus was that controls for construction are an unnecessary headache. There was general agreement that the construction industry could operate more efficiently if there were no controls.

• **New York drive**—Management and labor have teamed in New York to battle controls that have cut construction critically low and made thousands of building tradesmen jobless.

Last week Senator Irving Ives, one of a five-man Congressional group attending a protest meeting of contractors and labor leaders, said he will arrange for them an early conference with Mobilizer Wilson.

The announcement came after Howard McSpedon, head of the Building Construction Trades Council, disclosed that 15,000 New York construction workers are unemployed and another 30,000 have left the city in search of work. Unless the city gets early relief on commercial construction, McSpedon sees 135,000 building trades workers walking the streets by next July.

Peter W. Eller, chairman of the board of the New York Building Congress, cited a major construction complaint—schools and other projects, originally designed for use of structural steel were redesigned at Washington's request for reinforced concrete construction. In spite of this, he charges DPA officials can give him no idea of when the projects will be permitted to go ahead except that it will not be up for consideration before the third quarter of 1952.

DPA Administrator Manly Fleischmann was scheduled to meet with the New York construction industry leaders this week, to discuss some of their problems in greater detail.

• **Baltimore protest**—The Building Congress & Exchange of Baltimore last week made public a resolution of protest directed to Mobilizer Wilson and Administrator Fleischmann.

(*Continued on page 24*)

NPA orders suspension

WASHINGTON—The National Production Authority slapped a six-month suspension order on Alside Inc. of Akron, Ohio, for admitted violations of priority controls (ENR Nov. 15 p. 17). The action taken in Cleveland against this major aluminum manufacturer amounts to a virtual shut-down edict. The company is barred from using all controlled materials and all priorities help during the suspension period.

The NPA charge against the company was use of more than 3,100,000 lbs of aluminum in excess of its permitted consumption in the first nine months of the year, and exceeding the purchase quota in the July-September quarter by more than 1,276,289 lbs.

PROTEST CURBS ON BUILDING—Sen. Irving M. Ives (Rep., N. Y.) makes a point at Manhattan meeting where NPA controls on commercial construction were scored by New York contractors and labor. Listening to Sen. Ives, from left to right, are Howard McSpedon, president of the Building and Construction Trades Council, AFL; Peter W. Eller, chairman of the board of governors of the Building Trades Employers Assn. of New York City; Congressman Victor L. Anfuso (Dem. N. Y.) and Congressman James G. Donovan (Dem.-Rep.-Lib. N. Y.)

Protests mounting against controls

(Continued from page 23)

It specifically cites as reasons for the plight of the construction industry, these six points:

- Controllers have failed to take advantage of the thinking of the Construction Industry Advisory Committee in policy making decisions.
- Control regulations are lacking in meaning for those controlled.
- There are extreme delays in informing persons to be governed by regulations and their amendments.
- End use control and authorization of specific allotments are not workable at the same time.
- There are extreme delays in processing applications under regulations.
- Controllers do not recognize that construction industry requires an extended period of preliminary planning, progress charts and processing, including financial, fabrication of materials such as steel, delivery schedules so that construction may go ahead economically.

• **Recommendations listed**—"National Production Authority regulations, as applied to the construction industry, conserve little critical material and at the same time they are crippling a great industry," the resolution states.

The resolution that adds these recommendations for changes in NPA policy, stating the NPA should:

- Investigate thoroughly the possibility of increasing the available amount of critical materials for use in construction.
- Consult with the construction industry before establishing regulations and amendments.
- Amend its regulations so that buildings which have been commenced can be completed.
- Amend its regulations so that although actual construction has not commenced, substantial financial and legal commitments are recognized in defining the commencement of construction.
- Establish a firm policy that amendments of regulations shall not affect construction started under regulations in effect prior to amendment.
- Grant allotments for an entire construction project thus permitting orderly and economical progress to completion which is impossible with the present quarterly allotment plan.

Portland plans to pipe sewage under deep channel

Next step in construction of Portland, Ore.'s $17,000,000 sewage project is to pipe 52 mgd under a 2,000-ft wide, 35-ft deep river. Plans for this, the most difficult part of the entire project, have been drawn by the city engineers.

The Willamette River runs through the heart of Portland.

Duplessis Bridge collapse stumps engineer experts

QUEBEC—After completing public hearings on the collapse of the Duplessis Bridge at Three Rivers, Que., a commission appointed by Quebec Premier Duplessis reports no evidence of fault or negligence by the government or the builders of the bridge—Dufresne Engineering Co., Ltd., general contractor, and Dominion Bridge Co., steel fabricator and erector.

Commissioners Rene Lippe, a Montreal magistrate, and Lucien Dansereau, a Montreal engineer, attribute the bridge failure to rupture of one of the girders. Two hypotheses are suggested: an unknown scientific cause or sabotage.

The commission's report says that not one of the engineering experts who testified—Ernest E. Howard of Kansas City, Mo., Clarence R. Young of Toronto and Antonio Lalone of Montreal—was able to explain the collapse.

The $3.5-million Duplessis Bridge suddenly collapsed early in the morning last Jan. 31 killing four people (ENR Feb. 8 p. 23). With the outdoor temperature about 30 F below zero, there was almost no traffic on it at the time of the collapse. It was a continuous, welded bridge of composite construction.

New York's test air raid called remarkable success

NEW YORK—The largest city in the world came to a virtual standstill at 10:33 a.m., Nov. 28, when the warbling notes of the sirens signaled the start of the mock A-bomb raid.

Within minutes traffic stopped and millions took cover as New York assumed the look of a ghost town. Ten minutes later, when the all-clear sounded, Civil Defense officials agreed that the city-wide test was a "remarkable success."

But there were a few serious flaws in the otherwise smooth operation. Considered most serious was the complete blocking of traffic on many of the narrow side streets. In a real emergency such a condition would prove chaotic, according to Defense Director Arthur W. Wallander. Instructions were to keep a single lane open on all streets for in a real raid emergency and fire fighting equipment would be seriously handicapped. Need for additional shelter areas was also emphasized by Wallander.

Civil Defense officials also said this will be the last test raid for the city. If New Yorkers hear the sirens again, they warn, they can be sure it is an actual raid.

Supreme Court bars redress on award to dam contractor

WASHINGTON—Power of the contracting officer and his department head as final arbiters of all questions of fact arising under a federal government contract was confirmed last week in a Supreme Court decision.

The decision practically forecloses the right of a contractor to obtain redress in the U. S. Court of Claims.

Contractor groups plan to fight for legislation in the next session of Congress to restore the opportunity of getting equitable settlement of disputed questions before the Court of Claims. The Associated General Contractors of America sent a letter Monday to more than 6,000 members informing them of the potential effects of the decision on their business. The executive committee of the association is meeting in Washington this week to consider future action.

• **Case cited**—In United States vs. Martin Wunderlich et al., the Supreme Court, in a majority opinion, reversed a decision of the Court of Claims which awarded the Martin Wunderlich Co. some $172,000 for extra work performed in constructing Vallecito Dam in California for the Bureau of Reclamation.

The contractor had first tried to get a settlement with the contracting officer and then had appealed to the department head, the Secretary of the Interior, as specified in the contract. Dissatisfied with the result, the contractor had then filed suit in the Court of Claims.

Sweeping language of the Supreme Court decision takes away any chance for a contractor to obtain redress unless he can prove fraud. Says the majority opinion, "—This court has consistently upheld the finality of the department head's decision unless it was founded on fraud, alleged and proved. So fraud is in essence the exception. By fraud we mean conscious wrongdoing, an intention to cheat or be dishonest. The decision of the department head, absent fraudulent conduct, must stand under the plain meaning of the contract."

Three Supreme Court justices disagreed strongly. In a cogent and vehement dissent (appearing below), Justice William O. Douglas attacked the error of giving one man—be he ruler or bureaucrat—absolute discretion over the rights of others. Justice Stanley F. Reed joined in that dissent.

A third justice, Robert H. Jackson, entered a vigorous dissent on grounds that related specifically to human errors that can be made—however innocently—by government officials. He concluded with the words: "I still believe one should be allowed to have a judicial hearing before his business can be destroyed by administrative action—."

The Martin Wunderlich Co. signed the contract for Vallecito Dam, March 14, 1938, and completed the work satisfactory in October, 1940. In advance of the completion date.

The dam is a rolled earth-filled structure, 4,400 ft long, with a maximum height of 125 ft. Estimated cost of the project was $2,115,870. The contractor was paid a net sum of $2,220,965.30 for performance of the contract, but some 40 claims totaling more than $460,000 were indispute.

• **Allows claims**—Later the contracting officer agreed to allow eight claims for about $53,000. This money had not been paid when the case went to the Court of Appeals, and it was included in the award made by that court. Other claims were disallowed by the contracting officer, and the head of the department backed him up in a decision of July 7, 1943.

On 21 of his claims, the contractor entered suit in the U. S. Court of Claims. The court handed down its verdict June 5, 1950, ordering that the contractor recover from the United States the amount awarded. To determine the issue involved, the Attorney General ordered the case taken to the U. S. Supreme Court and the high court accepted the petition.

• **Precedents**—In the majority decision, the Supreme Court referred to past cases on contracts, both governmental and private, that delegated to an official the power to settle questions of fact. This authority, written into a government contract, was recently held valid in the Moorman case, the court said.

In several cases the opinion pointed out, similar contract provisions have been approved and enforced "in the absence of fraud or such gross mistake as would necessarily imply bad faith, or a failure to exercise honest judgment—."

Douglas attacks decision as unfair to contractors

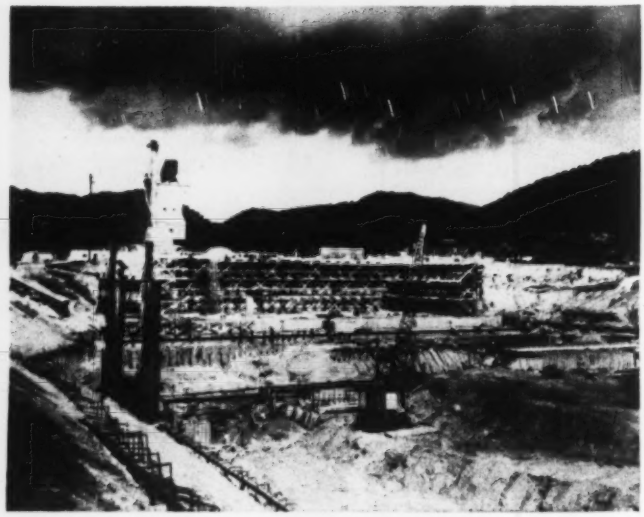
In a vigorous dissent, Justice William O. Douglas attacked the majority opinion of the Supreme Court that decisions of a contracting officer are final unless fraud can be proved. The Supreme Court decision practically closes the door on appeals to the Court of Claims by contractors over differences regarding questions of fact not explicitly covered in the contract. Justice Stanley F. Reed concurred with Justice Douglas, and a separate dissent was entered by Justice Robert H. Jackson.

Here are the words of Justice Douglas in the ringing dissent that he wrote:

"Law has reached its finest moments when it has freed man from the unlimited discretion of some ruler, some civil or military official, some bureaucrat. Where discretion is absolute, man has always suffered. At times it has been his property that has been invaded; at times, his privacy; at times, his liberty of movement; at times, his freedom of thought; at times, his life. Absolute discretion is a ruthless master. It is more destructive of freedom than any of man's other inventions.

"The instant case reveals only a minor phase of the age-long struggle. The result reached by the court can be rationalized or made plausible by casting it in terms of contract law: The parties need not have made this contract; those who contract with the government must turn square corners; the parties will be left where their engagement brought them. And it may be that in this case the equities are with the government, not with the contractor. But the rule we announce has wide application and a devastating effect. It makes a tyrant out of every contracting officer. He is granted the power of a tyrant even though he is stubborn, perverse or captious. He is allowed the power of a tyrant though he is incompetent or negligent. He has the power of life and death over a private business even though his decision is grossly erroneous. Power granted is seldom neglected.

"The principle of checks and balances is a healthy one. An official who is accountable will act more prudently. A citizen who has an appeal to a body independent of the controversy has protection against passion, obstinacy, irrational conduct, and incompetency of an official. The opinion by Judge Madden in this case expresses a revulsion to allowing one man an uncontrolled discretion over another's fiscal affairs. We should allow the Court of Claims, the agency close to these disputes, to reverse an official whose conduct is plainly out of bounds whether he is fraudulent, perverse, captious, incompetent, or just palpably wrong. The rule we announce makes government oppressive. The rule the Court of Claims espouses gives a citizen justice even against his government."



BUILDING FOR TOMORROW'S POWER—Among the big generating plants being built to meet the tremendous industrial expansion and growing power needs of the area, is the Kanawha River plant at Glasgow, W. Va. It will contain two 200,000 kw units and will cost over $40 million. (Acme)

Plant expansion plans roll ahead

Plans for expansions in chemical producing facilities, industrial plants, oil refineries, aluminum and copper facilities rolled ahead last week.

Leading in dollar volume is Union Carbide & Carbon Corp.'s $300-million expansion program for which financial arrangements have just been completed.

Having added $500 million of production facilities since 1946, the company has now launched a program which calls for expenditures of at least $110 million in 1952 if construction materials can be obtained, and the same rate is expected to continue through 1953 and 1954.

Most of the new expansions will be developed around the company's production of petro-chemical products, ferro-alloys for making various types of stainless steel, plastics, and other products.

American Cyanamid Co. announced it will start building a $48-million plant for producing nitrogen compounds for synthetic fibers and commercial chemicals at Avondale, La., a few miles above New Orleans. It has received a certificate of necessity for rapid amortization of construction costs.

• **Industrial plants**—A $35-million expansion program has been launched by Caterpillar Tractor Co. It includes building a new factory at York, Pa., and making extensive additions to its Joliet, Ill., plant and improving its Peoria, Ill. plant. The York plant will cover about 360,000 sq ft, and the addition at Joliet, about 230,000 sq ft.

Lakey Foundry & Machine Co., Muskegon, Mich., may soon undertake a $30-million expansion to produce steel castings, if government aid currently being negotiated becomes available.

• **Oil refineries**—Plans for a $30-million modernization and expansion program at its Norco, La., refinery, were announced by Shell Oil Co. Among the units to be added will be a large modern catalytic cracking plant.

Standard Oil Co. (Ohio) announced a $14-million modernization and expansion program for its refineries at Toledo and Lima, Ohio. A $3-million alkylation units is scheduled at Toledo, to be started early next year. At Lima, an $8.5-million catalytic reforming unit and a $2.4-million expansion of crude cooking facilities are planned.

• **Metals**—Defense Production Administrator Manly Fleischmann is trying to obtain a go-ahead on plans for Anaconda Copper Co. to begin production of aluminum, over objections of the Justice and Interior Departments.

The proposed plant to make 54,000 tons of aluminum ingots annually at Kalispell, Montana, has been denied use of government power from Hungry Horse Dam by Interior Secretary Chapman. A showdown between Fleischmann and Chapman may go to the White House.

Copper Range Mining Co., authorized a $57-million loan from the Reconstruction Finance Corp. is starting to open mining operations near Ontonagon, Mich., which will produce 75 million lbs of copper beginning in three years.

The project includes a new village for workers complete with churches, a theater, shopping centers, schools, all utilities, recreation center and 800 houses to cost from $10 million to $15 million.

Army's lowest estimate higher than contractors

SACRAMENTO—Corps of Engineer officials were somewhat surprised last week when low bids on building contracts for three Signal Corps warehouses were considerably below the engineers lowest estimate.

The low bidders exercised the Corps of Engineers design option and submitted their bid on the basis of their own design—using precast concrete walls and timber bow string trusses as opposed to concrete block or poured concrete walls and steel trusses.

Engineers Ltd., the Ben C. Gerwick Co., both of San Francisco, and the Continental Construction Co. of San Francisco, forming a joint venture called signal constructors submitted a bid of $3.2 million. The engineers lowest estimate for the project without profit to the contractor was $4.4 million—under concrete block construction.

Lost canal route found

COLUMBUS, O.—Startled residents of Shadeville, 12-mi southeast of here, are just finding out their town is located on the edge of a canal route.

The Columbus and Southern Ohio Electric Co., which holds a 99-year lease on canal land that won't expire until 2036, is digging up the "lost" Ohio canal route between Lockbourne Air Base and Columbus. Along the route it plans to string a high voltage line which will link Columbus by a more direct route to its Picway generating plant.

To locate the boundaries of the land they have leased, a power shovel is busy digging trenches 10 to 15 ft deep, taking samples of the soil, then refilling the trenches.

Special legislative session called to speed right-of-way for turnpike

COLUMBUS, O.—Gov. Frank J. Lausche has called a special session of the Legislature for December 10 to revise the Ohio Turnpike Act and provide the right of eminent domain.

Under provisions of the present law, the Ohio Turnpike Commission could not obtain right-of-way for the 240-mile toll road across the northern part of the state, until after settlement of all court disputes. Investment bankers said this would delay the turnpike indefinitely and refused to underwrite a bond issue for $300 million to finance the project.

In calling the legislature, Lausche said, "The turnpike project can not go forward in the face of the prospective buyer's unwillingness to buy bonds until the eminent domain provisions of the Turnpike law are amended.

"It is my belief that the impasse which has been reached constitutes an emergency and for that reason an extraordinary session of the legislature is justified.

He also pointed to the self-sustaining and self-amortizing features of the toll highway, and aid moneys heretofore used "to provide adequate highway facilities leading from the Pittsburgh to the Detroit and Chicago areas will be freed for use in development and maintenance of other roads in Ohio."

• **Trenton, N. J.**—The New Jersey Turnpike Authority opened 40 additional miles of its superhighway from Bordentown to the Woodbridge-Amboys interchange last week. Together with the 53 miles already open from the Delaware Memorial Bridge to Bordentown, this makes a total of 93 miles now available to motorists and truckers.

Another 16-mile stretch carrying the turnpike into Newark was scheduled to open late this week. And the final nine-mile section from Newark to the George Washington Bridge interchanged is to be opened January 15, 1952.

• **St. Louis, Mo.**—Missouri's State Highway Commission has accepted as a general guide, a $158-million plan for three major expressways totaling 53 miles in the area of St. Louis. It has been approved by city authorities, and has been submitted to the U. S. Bureau of Public Roads, one of the sponsors for the study that produced the plan.

Acquisition of right-of-way is to be spread from 1952 to 1963, and construction of the expressways to spread from 1952 to 1971, according to the plan. Proposed financing calls from $138 million from the state and $28 million in federal road aid.

• **Albany, N. Y.**—New York State's Comptroller will sell $65 million in bonds for highway and gradecrossing elimination projects to the highest bidder on Dec. 11. Of this total, $45 million will be used for construction and rebuilding state highways and parkways. Another $20 million will be used for railroad and grade crossing eliminations.

State Superintendent of Public Works Bertram D. Tallamy, last week said "federal allocations of steel for highways generally have now reached the starvation level."

The amount of steel available for highway construction work under his supervision in the fourth quarter of 1951 represent only 50% of that consumed in the corresponding quarter of 1950, he points out.

• **Sacramento, Calif.**—Tolls will be continued on the San-Francisco-Oakland bay bridge for possible ten years beyond the original expiration date of Jan. 15, 1952, as the result of action which was taken by the California Toll Bridge Authority here last week.

The Authority voted to issue $21 million in bonds immediately and gave its approval to another $59-million issue if approved by the state legislature. The $21 million will be used to retire outstanding bond issues, pay back $6.6 million borrowed from the State of Calif., and improve the bridge.

Improvements would include traffic signals on both the lower and upper decks, revamping of feeder roads on Yerba Buena Island, and installation of onside toll collection booths.

The additional $59 million would be used to improve the Alameda County and San Francisco County approaches to the bridge.

• **Columbia, S. C.**—Plans for expenditure of $21 million on new highway construction in 1952-53, have been disclosed.

Test road announced

WASHINGTON—The Highway Research Board, National Academy of Science, will conduct a road test in Southeastern Idaho to learn how heavy trucks effect bituminous pavements of varying thickness.

The board announced the test road would be built next year and will consist two loops. Each will have two 1,900-ft straightaways of identical design but pavements will vary in thickness from six to 22 inches.

TURNPIKE OPENING—Gov. Frank J. Lausche (second from left), who is having trouble getting his Ohio extension underway, last week helped cut the tape on the Ohio line terminus of the Pennsylvania Turnpike. The turnpike now ends in the middle of a field. Cutting the tape is Thomas J. Evans, chairman of the Pennsylvania Turnpike Commission. At left is Claire Lippert, Miss Pennsylvania of 1952, and at right, Artemus Leslie, Pennsylvania official. (Wide World photo.)

QUICK WORK AT A DAM SITE—While a cofferdam holds back the Columbia River, workmen pour concrete into monolith forms on the spillways for Chief Joseph Dam, Wash. When completed, the dam will be the second largest producer of hydroelectric power in the world. A daily average of 3000 cu yd of concrete is being poured into the spillways to build them up to the required 220 ft. (U. S. Army photo.)

Pacific Northwest to get more power

SEATTLE—Multi-million dollar construction plans for development of Pacific Northwest power projects were announced last week.

Biggest program in the week's line-up was labeled for Tacoma, Wash. The city has been granted a 50-year license by the Federal Power Commission to build and operate a hydroelectric plant on the Cowlitz River.

The authorization was given on condition the city make further tests and obtain commission approval before constructing any permanent fish handling facilities or fish protective devices.

Cost of the project has been estimated at $135 million with an additional $7 million for fish passage facilities.

• **Reclamation Bureau**—A $72-million construction program is being carried out on eight Federal Reclamation projects in the Pacific Northwest area, it was announced.

During the current fiscal year plans call for the start of a new dam—the Palisades in eastern Idaho—initial delivery of water to the million-acre Columbia Basin project in Washington and the near completion of Hungry Horse Dam in Montana. Other activities call for completion of rehabilitation programs on the Bitterroot (Montana), Yakima, (Wash.) and Ochoco (Oregon) projects, and finishing minor work on the Anderson Ranch and Lewiston Orchards projects in Idaho.

According to H. T. Nelson, regional director for the Bureau of Reclamation, Congress has made available $52 million for the current fiscal year, which together with a carry-over from last year, makes the present construction schedule one of the largest ever carried out in the region by the Bureau of Reclamation.

• **Bonneville**—Plans for Bonneville Power Administration also call for big spending in 1952. Contract construction work will total more than $10.3 million. The schedule calls for 77 large construction jobs, including transmission line construction, right-of-way clearing, substation construction and microwave radio station construction.

Sol E. Schultz, chief Bonneville engineer, announced a meeting of interested contractors at Portland Dec. 7 for general discussion of this schedule and various problems facing the agency and contractors.

California court holds 160-acre clause invalid

FRESNO—A superior court judge in Madera County, Calif., last week ruled that the controversial 160-acre limitation clause in a Bureau of Reclamation contract with the Madera Irrigation District is, in some cases, a violation of the California and U. S. constitutions.

The test case ruling may, if upheld, have far-reaching importance not only in California but in other areas administered under Reclamation law.

Judge Arthur C. Shepard, of Fresno, declared that the limitation is unconstitutional when applied to excess holdings of owners who held land before the signing of interim contracts between the bureau and the irrigation district in May, 1939.

The much disputed acreage limitation provision of the Reclamation law forbids delivery of water from a federal project to more than 160 acres of land in a single ownership.

72-mph wind closes Golden Gate Bridge

SAN FRANCISCO—A wind induced vertical vibration of the Golden Gate Bridge deck occurring during a storm Dec. 1 had a maximum total amplitude of 85 in. 42½ in. from neutral position.

Although the 72-mph wind is not the strongest to hit the bridge since studies were started in 1941 (after the failure of the Tacoma Narrows Bridge,) the vibration was the greatest recorded. That's because the wind hit the deck at almost a right angle and was practically horizontal.

Heavy rains and the gusty nature of the wind caused California highway patrol officials to close the bridge to

traffic for almost three hours between 6 pm and 8:55 pm.

• **Causes jam**—The closure during Saturday evening caused the worst traffic jam in the bridge history, taking hours to clear.

The closure was the first, except during wartime blackouts, in the 14-year career of the structure. Dangerous driving conditions caused by wind and rain were the closure reason; vibration of the deck was not the primary cause.

Vertical vibration measurements were noted on all ten of the recording instruments on the bridge deck (ENR Aug. 8, 1946, p. 106). The vibration mode was the simplest possible with maximum vibration at the middle of the 4,200-ft long center span. Almost perfect symmetry of motion was noted. Shape of the vibration was similar to type No. 0 shown in ENR Jan. 11, 1951, p. 32.

• **Safe**—No damage to the bridge resulted from the movement. Continuous studies have indicated that the bridge is in no real danger from destruction due to aerodynamic instability.

Some engineers privately conjecture that winds of sufficient magnitude moving exactly at right angles to the bridge deck would cause even greater movement than recently noted—perhaps enough to damage the structure. But development of such winds is considered impossible due to a high range of hills to the north and west of the bridge.

Housing activity spurts after shakeup

WASHINGTON — Defense Mobilizer Charles E. Wilson's appointment of Raymond M. Foley as his assistant for defense housing and community facilities has signaled a flurry of new housing activity.

• Philadelphia's Redevelopment Authority was given the go-ahead on one of the largest urban redevelopment projects undertaken to date.

• New critical defense housing area designations began flowing at an accelerated rate.

The Philadelphia project, which may result in expenditures as high as $500 million, was started by a $194,974 allocation from Foley's Housing and Home Finance Agency.

This sum will be used for preliminary studies on development of some 2,550 acres in the Eastwick "meadows" section of Philadelphia, looking toward construction of 15,000 new homes. HHFA has earmarked a capital grant of $6.3 million for the project if plans are finally approved.

• **Defense housing**—Until Foley's new appointment, Wilson had received advice from separate sources on certifying of critical defense housing areas, on programming of housing units, and on rent controls. Now Foley is riding herd on all three.

Faster, smoother operation should result, new areas being certified at a rate of six to ten a week for another month or two. But the total number won't run up to the 400 certified for special aids in the last war. Nor will the number of programmed housing units reach the total of 225,000 by June 30, as the HHFA told Congress this year.

Among the latest areas designated critical are: Bainbridge, Ga.; Clovis-Portales, N. M.; Carlsbad-Artesia, N. M.; Monterey-Fort Ord, Calif.; Oxnard-Port Hueneme, Calif.; Hondo, Texas; La Porte-Starke, Ind.; Dover-Denville, N. J.; and Pittsburg, Concord and Atioch, Calif.

Housing goals in five areas were announced for: Bryan, Tex.; Camp McCoy, Wisc.; Dover-Denville, N. J.; Fort Bragg, N. C.; and Mountain Home, Idaho. The housing programmed totals 1,300 units—1,020 for rent and 280 for sale.

Cash breakdown listed for Texas flood control

FORT WORTH — The congressional appropriation of $14.5 million for Texas flood control projects has been earmarked. Here are the projects being constructed under supervision of the Fort Worth District, Corps of Engineers.

• **Brazos River Basin**—Whitney Dam and Reservoir will get $3.8 million and the Belton Dam and reservoir, $4 million. The funds will continue work begun on both these projects.

• **Colorado River Basin**—will get $1.2 million for purchase of real estate and additional construction in connection with the San Angelo Dam and reservoir project.

• **Trinity River Basin**—Levon Dam and reservoir will get $1.5 million; Gerza-Little Elm Dam and reservoir, $3 million; Benbrook Dam and reservoir, $339,000 and the Fort Worth Floodway project, $700,000. The money is for completion of work already underway and some additional construction. The Grapevine Dam and reservoir received no federal appropriation, but the Park Cities and Dallas have contributed $1.5 million for the year's program.

Water storage to begin behind Texas' Whitney Dam

FORT WORTH—Storage of water behind Whitney Dam—19,600 ft. long—is slated to begin Dec. 10, according to Col. Delbert B. Freeman, Fort Worth district engineer, Corps of Engineers. The result will eventually form one of the largest man-made lakes in the state, extending over 15,800 acres.

To form the reservoir 12 to 16 gate-controlled conduits located near the base of the concrete spillway section of the dam will be closed to hold back part of the Brazos River. Filling the reservoir will permit testing the hydraulic turbines in the Whitney powerhouse next Spring and Summer. The power facilities are now under construction.

National Research council gives nod to fluoridation

WASHINGTON—A special committee of the National Research council has issued a report endorsing fluoridation of public water supplies. The report stated that, properly controlled, the addition of fluorides to drinking water which lacks these chemicals appears both safe and effective in reducing tooth decay.

The report also warns that its safety depends on proper controls and its effectiveness on proper selection of water supplies for treatment.

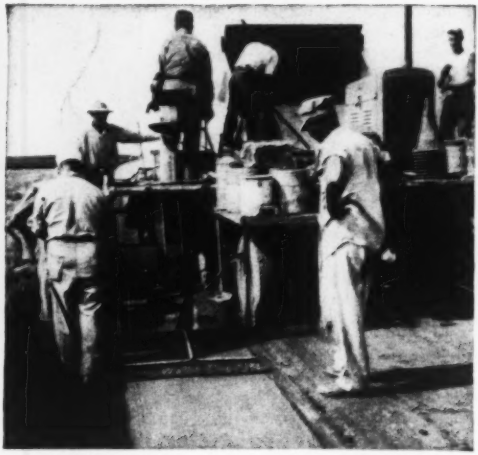
Because of the controversial reaction to fluoridation throughout the country the National Research council was appointed last spring to make an impartial study of the problem.

Costly crane mishap

WASHINGTON — Hutchison Crane Excavating Co. now faces a $750,000 damage suit as the result of the death of builder Meyer Grodsky, 38, who was crushed by a broken crane boom Sept. 7. Grodsky was inspecting the basement of a home he was building, when the boom crashed through first story flooring and struck him.

Last week the company forfeited $200 in Municipal Court after being charged with operating defective equipment. Mrs. Marian Grodsky promptly filed suit for the $750,000 damages charging the company knew or should have known that the crane was in a "defective and improperly repaired condition."

PATCHING requires the removal and replacement of 3,000 sq yd of concrete pavement at a cost of $10 to $16 per sq yd.



WIDENING to 24 ft will take enough concrete to build 12.5 miles of new 24-ft pavement—no side forms are needed.

How Illinois is rehabilitating 57 miles of worn out, narrow pavement . . .

Illinois U. S. 45 gets new lease on life

How to rehabilitate a worn out, inadequate concrete pavement in four not-so-easy steps is being demonstrated on a large scale this year on Illinois' U. S. Highway 45.

It is patched for strength; then widened for safety; undersealed for stability; and, finally, resurfaced with asphaltic concrete to give it riding qualities second to none.

The work is divided into two sections: 40 miles of reconstruction and 7.6 miles of new construction between Kankakee and Paxton; and 17 miles of reconstruction between Champaign and Tuscola where U. S. 45 intersects U. S. 36—the main east-west route connecting the state capitols of Illinois and Indiana. The work got underway last April, and most of it will be finished this year.

• **An important route**—U. S. 45 is one of Illinois' most important highways. It not only provides a southern outlet for Chicago to downstate Illinois, but it also is part of the principal north-south truck and tourist route between Chicago and New Orleans.

At Kankakee, U. S. 45 connects with 50 miles of four-lane divided highway (U. S. 54) leading into south Chicago. From Kankakee, U. S. 45 extends north into Wisconsin, serving several important suburbs on the west side of Chicago.

Its economic importance to the state and its relatively high 24-hr traffic count (800 commercial trucks and 3,000 other vehicles, south of Kankakee) were leading factors in scheduling the reconstruction work now under way. Decision to rehabilitate the 57 miles of old pavement between Kankakee and Tuscola in lieu of new construction is in keeping with the Illinois State Highway Department's policy of stretching its highway dollars.

• **An expensive job**—But even at that it is costing the sizable sum of $2,283,000 to rehabilitate the 57 miles of old pavement. This includes: Patching and widening 32 miles of pavement, $506,500; undersealing and surfacing the same 32 miles of pavement, plus 8 miles that wasn't widened, $965,000; patching, widening and undersealing 17 miles, $399,000; and surfacing this 17-mile stretch, $413,000.

One new bridge costing $102,000, together with 7.6 miles of new 24-ft portland cement concrete pavement on new alignment at $888,000 (exclusive of right-of-way) brings the total cost up to $3,274,000.

On the 17-mile improvement between Champaign and Tuscola, patching, widening the old 18- and 20-ft pavement to 24-ft, and undersealing it costs $23,500 per mile. Resurfacing the 17 miles costs $24,300 per mile.

This adds up to $47,800 per mile for reconstruction (or $9 per lin ft of pavement), but it provides a smooth riding 24-ft pavement, corrected for pavement failures and pumping.

By comparison, the 7.6-miles of new 24-ft portland cement concrete pavement will cost $117,000 per mile, exclusive of the cost of right-of-way.

• **Pavement patching**—There are an estimated 3,000 sq yd of pavement patching in the two projects, representing about 0.5% of the total area of the old pavement. Patches run from 1.0 to 38 sq yd in area, while the cost of the work runs from $10 to $16 per sq yd depending on the type of patch.

There are four types of patches: Type I patches are inside corner breaks; Type II are 3- to 7-ft long; Type III, 7- to 15-ft and; Type IV, over 15 ft (average lengths).

The old pavement is removed with pneumatic pavement breakers and patches are made with wet-batched air-entrained concrete, vibrated and screeded level with the adjacent pavement. They are cured with a membrane curing compound. Only one lane is patched at a time to minimize the inconvenience to traffic. Moreover, the work is programmed so as

UNDERSEALING calls for the pumping of 1,000,000 gal of hot asphalt into 51,000 holes drilled through the old pavement.

SURFACING with 2 layers of asphaltic concrete gives good riding qualities and extends the life of the pavement.

to keep at least 500-ft of two-lane pavement open to traffic at 1,000-ft maximum intervals.

• **Pavement widening**—The old pavement is widened to 24 ft before any undersealing is done. There are 174,800 sq yd of 9-in thick pavement widening in the two projects; equivalent to 12.5 mi of 24-ft by 9-in. pavement. Average contract price is $4.25 per sq yd, exclusive of excavation.

No side forms are used on either of the pavement-widening jobs. First operation is to strike off the shoulder with a patrol grader, to about a 1 on 6 slope dropping away from the edge of the pavement. This gives a uniform shoulder contour for the excavating machine.

Trenches for the new pavement are excavated to either a 2-ft or 3-ft bottom width by patrol graders, equipped with special blades and operating on the pavement. A ripper tooth mounted ahead of the inside corner of the cutting blade breaks up compacted material and takes considerable strain off of the blade.

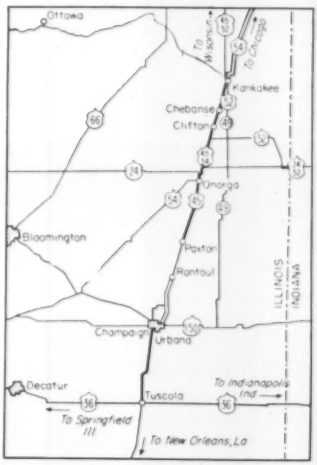
A 2,600-lb smooth wheel roller is hooked to the rear of the grader blade during the final pass of the grader to compact the trench bottom ready to receive the concrete.

Concrete for pavement widening is wet-batched at a central concrete plant and hauled to the site in non-agitating trucks, with specifications limiting the time of haulage to 20 min.

• **All-purpose concrete machine**—Concrete is placed in the trench with a pneumatic tired machine normally used to spread stone or gravel.

Special equipment added to the spreader, however, permits it to do a complete job of placing the pavement in a single pass: (The equipment is carried by a rigid steel frame mounted at the rear of the spreader, and extending out over the widening trench.)

The concrete is dumped into a hopper and fed into the trench by a short endless belt. A length of grader blade equal to the width of trench is mounted at the front of the frame to insure a full-width smooth trench and proper thickness of slab. As the concrete is placed in the trench it is vibrated by a vibrating bar, with a power take-off from the spreader's transmission.



SECTION I of improved U. S. 45 between Kankakee and Paxton, Ill (40 mi) will cost $1,472,000. Section II, between Champaign and Tuscola (17 mi) will cost $812,000 for patching, widening to 24 ft, undersealing and surfacing.

Immediately behind the vibrator is a so-called "mule" which controls the width of pavement and insures its top surface being flush with the old pavement. It has a heavy steel plate, turned up in front, which slides over the fresh concrete, and a side plate that slides along the outside of the new concrete. About 600 lb of concrete ballast was added to the outside rear corner of the spreader to keep the "mule" in close contact with the top of the old pavement as it slides along over it.

• **No side forms needed**—A disc pulls fresh dirt against the side plate, which is compacted by a spring-mounted pneumatic tire. This eliminates the need of side forms and speeds the work. The final item is a steel push-broom attached to the rear of "mule" to give a brushed surface to the concrete.

The normal crew for this equipment includes: 1 operator, 1 finisher, 3 laborers, 2 flagmen and 1 foreman. Best day's work was 8,200 lin ft of 3-ft pavement widening. The concrete is cured by a membraneous curing compound and opened to traffic in four or five days.

• **Widening at intersections**—A 20-ft gap is left in the strip of pavement widening at all cross-roads. Later, these gaps are formed with timber and filled with concrete.

Where private owners permit their

TRACTOR-MOUNTED air drill can drill 100 undersealing holes per hour, but bits are changed after 20 holes to keep them from getting too hot. Operator is protected by a two-way red blinker light mounted at his left; also by a flagman.

driveways to be blocked for 24 hr no gap is left in the pavement widening, and the owner is permitted to drive over the concrete after it has set for 24 hr. Where driveways can not be blocked a 20-ft gap is left and concreted later.

Final operation in the pavement widening is to pick up all excess trench-excavation not needed for shoulder widening, and haul it away. One outfit, using a force-feed loader and a fleet of 7 trucks, cleaned up as much as 8½ miles of shoulder in 8 hr.

• **Bituminous undersealing**—The undersealing is done with petroleum asphalt (PAF-3) at temperatures from 400 to 475 deg F. Holes for receiving the asphalt are drilled 1¼-in. in diameter by a tractor-mounted drill.

Ordinarily the drill-holes are located about 18-in. on the trailing side (far side in the direction of traffic) of the transverse cracks, and normally midway between the outside edge and the center line of the old pavement.

The old pavement was badly cracked: It requires from 750 to 900 holes to seal 1-mile of pavement. It will take an estimated 1,000,000 gal of asphalt forced into 51,000 drilled holes to underseal the 57 miles of old pavement. One driller, drilling up to 100 holes per hour, keeps two sealing crews busy. Drill bits are changed after each 20 holes; chiefly to keep them from getting too hot.

The liquid asphalt for sealing is supplied by large distributor tank trucks, and forced into the holes under a pressure of 60-psi with a pressure gun connected to the hand-spray outlet on the distributor. Pressure is applied until the asphalt breaks out at the cracks, along the joint between the old pavement and the new strip of widened pavement, or along the outside of the new pavement.

Average consumption of asphalt is 20 gal per hole, but this has been as much as 50 gal. One outfit can seal about ¼-mile of pavement (both sides) in a 10-hr day.

• **Safety precautions**—Workmen handling the hot asphalt wear asbestos gloves, welders' aprons and hoods with clear eye-pieces, for protection. Just prior to forcing the asphalt into a hole, the surrounding concrete surface is saturated with water to facilitate removal of any asphalt spilling onto it.

After a hole is sealed it is immediately plugged with a wooden plug to prevent extrusion of the asphalt under back pressure. Plugs are removed after the asphalt has solidified and the holes are filled either with sand-cement grout or a sand-asphalt mixture.

• **Asphalt surfacing**—The final step in rehabilitating the old pavement is to surface it and the concrete widening with asphaltic concrete. This operation, which follows normal procedures, will take 78,000 gal of priming asphalt and 138,000 tons of bituminous surfacing for the 57 miles of pavement.

The asphaltic concrete is placed in two courses—a leveling and binder course of 1½-in. minimum thickness, followed by a 1¼-in. surface course. Best day's work has been 800 tons of asphalt placed in 10 hr.

Prior to placing the binder course, the concrete pavement is given a prime coat of 1/10 gal per sq yd of rapid curing asphalt. It is then sprinkled lightly with sand so traffic can use it without skidding. About 1 mile of pavement is primed at a time. After the 24-ft pavement has been surfaced, 3-ft gravel or crushed stone shoulders are constructed along each side.

• **Engineers in charge**—The entire job from Kankakee to Tuscola is under the supervision of R. H. Tittle, engineer of construction, reporting to F. N. Barker, chief engineer, Illinois State Highway Department.

The Kankakee-Paxton section is under the field supervision of District 3. Kendrick Harger is district engineer; R. W. Gerling is construction engineer, assisted by J. H. Martin. N. E. Sprague, district engineer of District 5, succeeding the late G. A. Somerville, has the field supervision of the work from Champaign to Tuscola. His construction engineer is J. J. Cychol, assisted by R. G. Gher. Resident engineers are: J. R. Gulick, A. W. Meloan, H. J. Spelman, Ralph Oesterle.

CONTRACTORS AND CONTRACTS

Illinois U. S. Highway 45

Jansen & Schaefer, Pekin, Ill.
32.0 mi. pavement patching and widening
Clifton-Paxton, Ill.
Contract price: $506,500
Superintendent: F. N. Toepfer

General Paving Co., Champaign, Ill.
17.0 mi. patching, widening and undersealing
Champaign-Tuscola, Ill.
Contract price: $399,000
Superintendent: Tom Kelly

Triangle Const., Kankakee, Ill.
20.8 mi. undersealing and bit. surfacing
Kankakee-Onarga, Ill.
Contract price: $471,000
Superintendent: Richard Loiselle

Sterling Asphalt Paving Co., Chicago
19.3 mi. undersealing and bit. surfacing
Onarga-Paxton, Ill.
Contract price: $494,000
Superintendent: L. J. Ryan

Champaign Asphalt Co., Champaign, Ill.
17.0 mi. bituminous surfacing
Champaign-Tuscola, Ill.
Contract price: $413,000
Superintendent: E. M. Ryan

Chicago Heights Coal Co., Chicago Heights, Ill.
7.7 mi. portland cement conc. pavement
Chebanse-Clifton, Ill.
Contract price: $888,000
Superintendent: Ernest Molyneaux.

Triangle Construction Co.
3-span steel I-beam bridge, concrete deck
Chebanse-Clifton
Contract price: $101,500
Superintendent: Karl Condiff

Your requirements in concrete forms range from the rough job to the super-finish job—and from the one-time usage to the sound economy of repeated uses.

To meet all your requirements, Atlas offers four types of Concrete Form Panels—Atlas Con-Form (Hardwood), Atlas Con-Form-X (Exterior Hardwood), B. B. Plyform (Interior) and B. B. Concrete Form (Exterior).

Each of the four types is solid 2 sides, S2S, oil-treated, edge-sealed—and available in either 5/8" or 3/4" thicknesses.

This hard, glassy surface leaves a super-finish on the concrete

While Con-Form and Con-Form-X are slightly higher in cost, they are also the most economical to use. Each has a hard, glassy surface that leaves a super-finish on the concrete; obviously this means less work on the finished form. In addition, each has the toughness to lend itself to repeated usage.

When you think of concrete form materials, think of Atlas. Here is one of the few fully integrated companies in modern industry. From standing tree to finished panel every step of processing and manufacture is under one ownership, one control, one *responsibility*. Long experience usually produces a quality that goes clear through. You'll find that quality in Atlas Concrete Form Panels. You'll save time and money by specifying them. Your inquiry for further details—addressed to Department 22—will receive a prompt reply.

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Everything looks upside down to the three-toed sloth. Unique among animals, he prefers to live his life dangling downward from the top branches of tall trees. Helping him to survive in his topsy-turvy world are highly specialized and powerfully developed rear and forelimb muscles.

In wire rope, too, specialized jobs call for the right kind of muscle. Load strain! Bending fatigue! Shock stress! Abrasion! Each calls for wire rope that best combines the required resistance characteristics.

Complete quality control from ore to finished rope; long experience and specialized know-how—these are your assurance that in Wickwire Rope you always get the proper combination of physical properties for long-lasting, reliable service on your particular job.

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THE COLORADO FUEL & IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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LOOK FOR
THE YELLOW TRIANGLE
ON THE REEL

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THE COLORADO FUEL AND IRON CORPORATION

Light and heavy walls precast for factory

Leslie A. Irvin
Supervising Structural Engineer
Bechtel Corporation
Los Angeles, Calif.

TWO WEIGHTS OF CONCRETE were used in the exterior walls of the new Continental Can Co. plant on Terminal Island, Calif. These walls consist of precast panels, of which the bottom ones, which rest on the foundations, were made of ordinary stone concrete (144 lb per cu ft) while the panels above were made of concrete weighing only 95 lb per cu ft.

The can manufacturing plant was built to serve the expanding fish industry in Southern California. It is about 200 ft wide, 640 ft long and 40 ft (one story) high. The structural frame is steel.

Precast concrete was selected for the building walls after cost comparisons were made for various materials.

Because of the height of the building and the necessity of reducing earthquake forces to a minimum, lightweight concrete was used for the upper wall panels. This concrete was made with expanded-shale aggregate. With vacuum processing to remove excess water from the mix, the strength of the concrete averaged 4,900 psi.

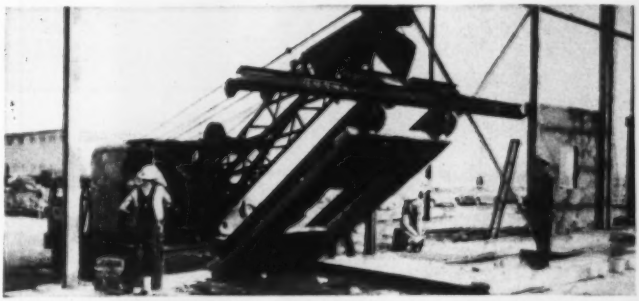
Light panels are 5x6½ ft, 2 in. thick. They are reinforced with 6x6-in. No. 6 wire mesh. For clipping to the steel frame, inserts were embedded, made from double-length hexagonal nuts welded to clips and a continuous rod. A clip angle was bolted to each of three inserts near the panel bottom for welding to the building girts. Three clips also were provided at the top, to be placed under the flange of the 8-in. channel girts. These girts span 20 ft between columns, braced at third points with 4-in. channels.

Spaces between panels were filled with a calking compound. To make certain of a watertight joint that would expand and contract with the building frame, the compound was inserted from both sides of the wall.

Bottom wall panels, which were made of stone concrete, are 5½ in. thick. Cast on the building's concrete floor, they were tilted into position.

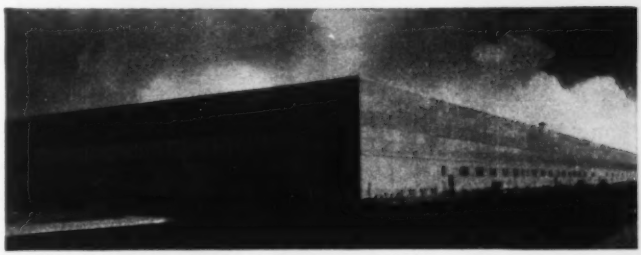
Layout of the plant was prepared under the direction of Sherlock McKeween, vice president, and John Fedosky and Otto Welti, of the Continental Can Co.

Bechtel Corporation designed and built the plant. Leo Allen was job superintendent, Earl E. Nichols, general superintendent. C. D. Wailes Corp. made and installed the panels.

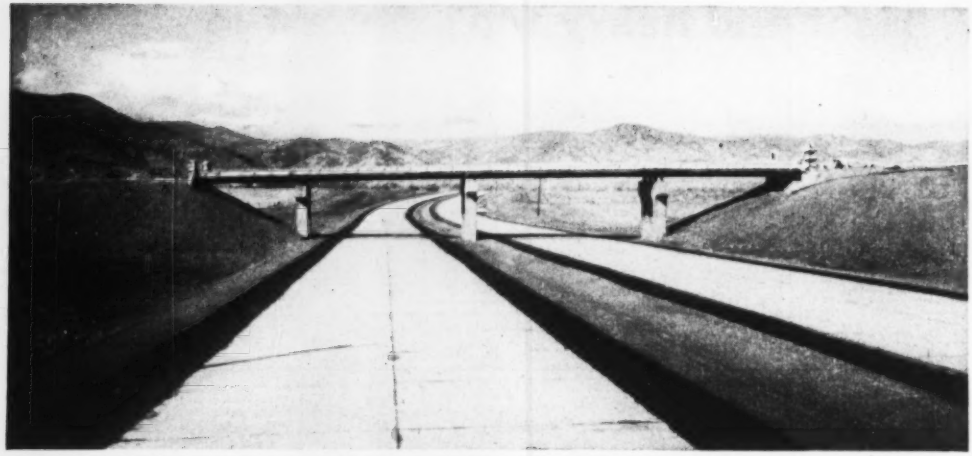


1 BOTTOM WALL PANELS for Continental Can Co. plant, Terminal Island, Calif., were cast on the floor slab and tilted into place.

2 UPPER PANELS were hoisted by a crane, bolted, then welded to steel.



3 RESULT—attractive walls at relatively low cost, designers claim.



COLORADO'S TOLL TURNPIKE is designed to provide a direct limited-access highway between Denver and the university city of Boulder to supplement the present indirect and overloaded route.

Denver-Boulder Turnpike nears completion

B. Hudgins
Project Engineer,
Howard, Needles, Tammen & Bergendoff,
Boulder, Colo.

A TOLL TURNPIKE that cuts 8 miles off the distance between Denver and Boulder, Colo., by the older highways will go into service late in December. It is 17.3 miles long and cost $6 million.

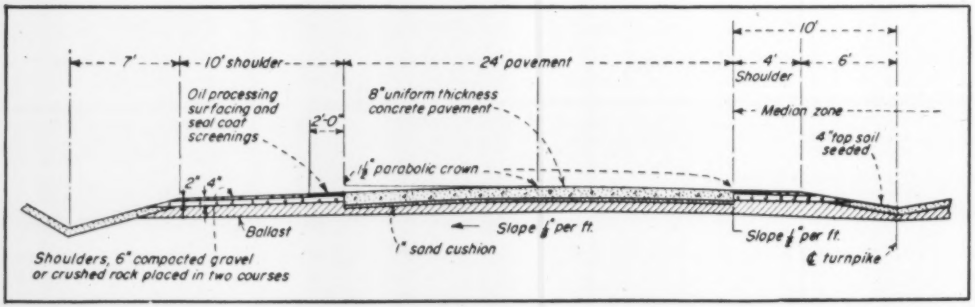
For many years there has been a growing demand for a highway that would shorten the tortuous route between Denver and Boulder, which carries a heavy tourist traffic as well as a high year-round average of regional traffic. After much preliminary work, enabling legislation was passed by the Colorado legislature early in 1950 and surveys were initiated in May of that year.

First contracts were let in September, 1950, to Peter Kiewit Sons Co. for grading the northwest 10.7 miles and by Feb. 1, 1951, all contracts had been awarded for the entire project. Grading on the southeast 6.6 miles was awarded to J. H. and N. M. Monaghan and Associated Contractors of Denver. Contract for the 8-in. concrete paving went to Western Contracting Corp. of Sioux City, Iowa; and toll buildings and facilities to the Hudson Construction Co. of Boulder. Bridgework and grade separation structures were awarded the Monaghan firm on the south part and to Kiewit on the north.

Unusually wet weather for Colorado during the spring, and late deliveries of steel, slowed progress and put off the opening of the turnpike until later in the year than had been planned when contracts were let.

Rapid progress was made with the paving during the past summer. The Western Contracting Corp. used two 34-E dual-drum pavers side-by-side to lay the 8-in. thick unreinforced concrete pavement for the full width of 24-ft. It was laid on a 1-in. sand cushion over a granular sub-base of varying thickness, as shown in the accompanying drawing.

There is a 10-ft wide shoulder on the outside of each 24-ft roadway, a 4-ft shoulder on the inner side, which is included in the 20-ft wide median zone separating the opposing lanes of traffic. As an added safety measure and to reduce raveling along the pavement,



EACH ROADWAY is paved with concrete, laid on a granular base. There are stabilized shoulders on each side, and opposing traffic lanes are separated by a 20-ft median zone. This drawing is a half section through the highway shown above.

compacted, oil-processed surfacing is laid along all pavement edges for a width of 2 ft to a depth of 2 in.

The granular sub-base was laid initially to depth of 5 in. and then reshaped in the paved area for the sand cushion and concrete paving. It is of material so graded that 100 percent will pass a screen with 3-in. square openings; 95 to 100 percent will pass 2½-in. openings; not more than 80 percent will pass a No. 10 sieve; and 5 to 15 percent will pass a No. 200 sieve.

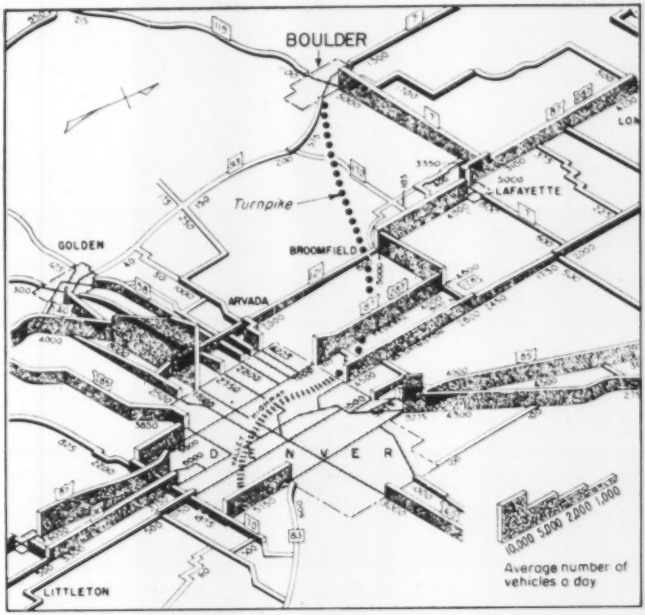
• **Limited access**—Grades are separated at all intersecting roads and streets. Access is limited to the terminals in Boulder and on the outskirts of Denver and to an intermediate point near Broomfield. Eleven miles of state or county roads and city streets had to be relocated as part of the project.

A contract has just been let to Lowdermilk Bros. of Denver for construction of 2¼ miles of highway to connect the south end of the new turnpike with the completed section of the Valley Highway in Denver. It covers single lanes of bituminous pavement on a right-of-way laid out for dual-lane development. Included in this contract are grade separation structures and ramp connections with Federal Blvd. near the south end of the turnpike. Due to the fact that steel for these structures will not be available until the first quarter of 1952, that connection probably will not be completed until midsummer.

• **Financing the Project**—Revenue bonds were issued by the Colorado State Highway Department to finance the work under a legislative act that limited the state's liability, in case tolls were inadequate for operating and financing costs, to 30 percent of the interest requirements in any one year. When the bonds have been paid off, the turnpike becomes a free road. Tolls are to be collected at a single toll-collecting station which will be near the midpoint on the turnpike at the Broomfield interchange. It will cover both the through traffic and traffic leaving or entering the turnpike at that point.

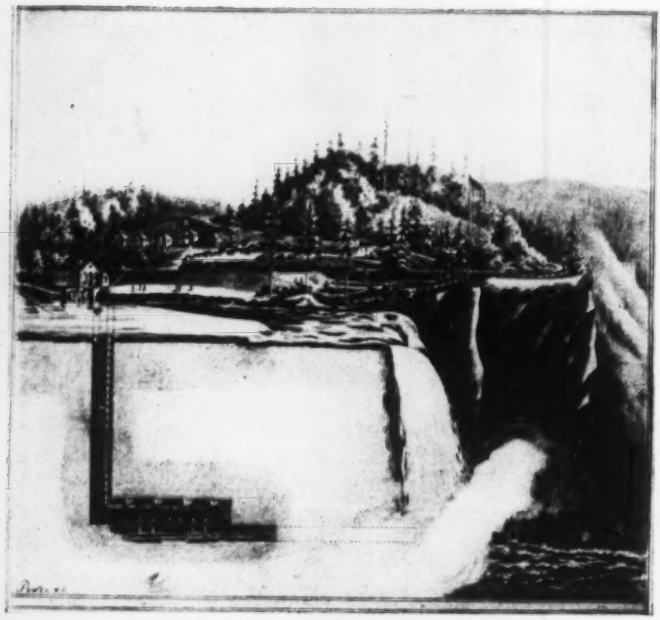
• **Construction and operation**—The turnpike is being built by the State Highway Department under the direction of Mark U. Watrous, state highway engineer, instead of by a separate turnpike authority. It will be operated and maintained by the department.

Engineering design and construction supervision are being handled by Howard, Needles, Tammen and Bergendoff, consulting engineers of Kansas City and New York, with the writer as project engineer and Browning Crow is assistant project engineer.



EIGHT MILES will be cut from the present highway distance between Denver and Boulder when the new turnpike is opened.

TOLLS WILL BE COLLECTED at the Broomfield interchange, near the midpoint of the highway. Traffic entering or leaving the highway at that point will pass through the toll gates, which will be located under the overpass. (Photos by Louis Kisseleff, Boulder)



ARTIST'S SKETCH, published in the October, 1899, issue of POWER, of a hydroelectric plant built back of Snoqualmie Falls in Washington.

First underground power plant?

WHAT NOW APPEARS to be the world's first underground power plant is not in Europe, as most people believed, but in the state of Washington—beneath the cliffs at Snoqualmie Falls.

Completed in 1899, that little plant has been almost overlooked in the current discussion of underground plants stemming from the building of a number of large underground plants, chiefly in Scandanavian countries, during and since World War II.

Unlike many of the recent plants in Europe, the Snoqualmie Falls plant was not put underground as a protection against aerial bomb attack—an unknown method of warfare when it was built. It was put underground to avoid trouble from freezing spray from the falls in winter. Precedent for putting the plant underground came from the first Adams plant at Niagara Falls, built about 1890. Its hydraulic turbines were set at the bottom of shafts 135 ft. deep and discharged into a tunnel extending 7,481 ft to the gorge below the falls.

The generators in the Adams plant, however were at the surface, in a conventional power house, being driven by long vertical shafts from the turbines.

At the Snoqualmie Falls plant, both turbines and generators are in a chamber 40 ft wide, 30 ft high and 200 ft long, cut out of solid rock about 250 ft below river level above the falls. The turbines are served by a steel penstock, 7½ ft in diameter, down a 10x27-ft shaft, in which also is the elevator serving the plant and conductors to carry power to the surface.

In the original underground station, four horizontal turbines, each of 2,000-hp. capacity, drove four 1,500-kw electric generators. Water from the turbines is discharged below the falls through a tailrace tunel 12 ft wide, 20 ft high and 450 ft long.

• **Water wheel design**—An account of the plant, published in ENGINEERING NEWS of Aug. 31, 1899, says that the water wheels are of a design invented by Thomas T. Johnston, chief engineer of the Snoqualmie Falls Power Co., and "resemble in form the double impellers used in rotary blowers and pumps." They were reported to have an efficiency of 90 percent.

These impellers were found to be unsatisfactory because of vibration and noise, and only two were actually installed. Consequently, in 1900, impulse-type wheels were designed and installed by the Doble Manufacturing Co. of San Francisco. They are in service today. A fifth unit was installed in 1905. It had a 5,000-kw generator driven by a Francis-type water wheel which was then the largest single discharge wheel anywhere.

A low dam above the falls diverts water to the penstock through a small intake structure.

A second plant was built at the falls in 1910, being located far enough downstream to be free of trouble from spray and ice. It is a conventional hydro station served by a tunnel and penstock from the pool above the falls. Both plants are now part of the system of the Puget Sound Power & Light Co., Seattle.

Arthur Kramer, advertising director of that company, supplied most of the information on which this report is based in reply to an inquiry that came to ENR from the Aluminum Secretariat Limited of Montreal.

• **Another plant**—Another early underground power station was located at Fairfax Falls on the Lamoille River in Vermont. It also was built in a cavern cut out of the rock cliff over which the river falls and its turbines were fed by a vertical penstock from a forebay just beyond the upper end of the rock chamber. It contained three 350-kw generators operating under a head of about 75 ft.

That plant was built in 1904 by the Vermont Power & Mfg. Co., predecessor of the Public Electric Light Co. Because of insufficient rock cover, moisture was always a problem in the generating room.

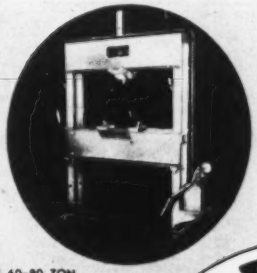
Current from the generators was carried through the roof to a brick transformer station above the falls where it was stepped up to 16,500 volts for transmission 13 miles to St. Albans.

M. P. Foster, superintendent for the Public Electric Light Co. at St. Albans, states that this was one of the early "high-voltage" transmission lines in this country and attracted considerable attention in its day.

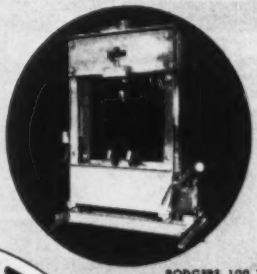
That plant was superceded in 1919 by a redevelopment on the other side of the river containing two 1,800-kva units, but it was kept in operating condition and connected to the new station by a submarine cable. Finally, it was ruined in the 1927 flood, which broke through the roof, filled the rock chamber with debris, and swept one generator about 200 ft downstream.

Since the flood, according to Mr. Foster, the chamber has been cleaned out and is now accessible. He adds that the last piece of equipment from the old plant, the reconditioned crane, was installed in the company's diesel plant in 1950.

Information concerning this plant was supplied by Mr. Foster and Frank B. Hunt of New England Power Co.



RODGERS 60–80 TON SHOP PRESS



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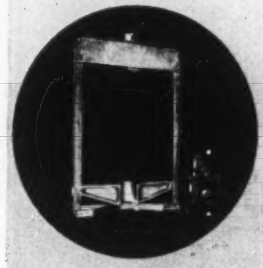
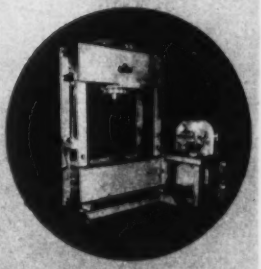
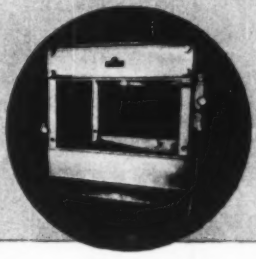
HYDRAULICS Rodgers KEEP THE WORLD MOVING



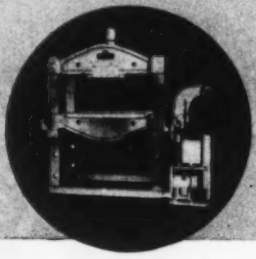
RODGERS SPECIAL SHOP PRESS



RODGERS 150–200 TON SHOP PRESS



RODGERS SPECIAL 100 TON SHOP PRESS



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Rodgers Catalog No. 313A has descriptions and specifications on the complete line of Shop Presses.

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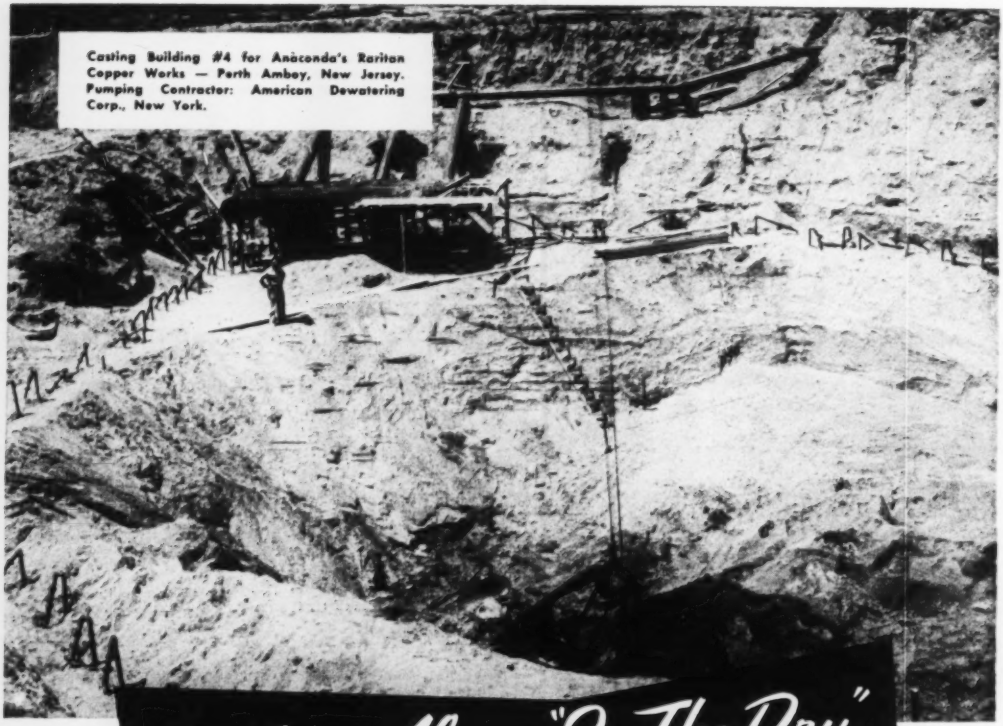

Casting Building #4 for Anaconda's Raritan Copper Works — Perth Amboy, New Jersey. Pumping Contractor: American Dewatering Corp., New York.

Sailing Along "In The Dry" on Raritan Bay

It's smooth sailing on this deep wet job for the contractors, Wallace J. Wilck, Inc., of Perth Amboy, N. J.

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U.S. Public Health Service research grants available for work in sanitary engineering

Irving Gerring
National Institutes of Health
U. S. Public Health Service

THE PUBLIC HEALTH SERVICE ACT, passed in 1944, authorized research grants and fellowships, under jurisdiction of the division of research grants, National Institutes of Health. A section of this law states that the surgeon general of the U. S. Public Health Service shall conduct, encourage and assist in research relating to health, including studies of water purification, sewage treatment and the pollution of lakes and streams.

National advisory councils have been appointed to advise the surgeon general as to which research grants warrant approval. These councils are made up for the most part of non-federally employed authorities in the various fields. And to assist the advisory councils on highly technical matters, study sections of experts in some 20 special fields of interest were appointed.

These study sections, including one in environmental health, have two major responsibilities: 1) to review applications for research grants and provide technical advice on action to be taken, and 2) to survey the total research being conducted in their particular fields in order to stimulate additional work in neglected areas. The councils and study sections have, therefore, responsibility for a major portion of the guidance and administration of the program.

• **Schools' chances better**—Although research grants may be made to individuals, they are usually made to an institution. Individuals find it advantageous to affiliate with universities or institutions because this affiliation facilitates the administration of a grant, provides the research worker with better facilities, and promotes collaboration with colleagues in related fields.

Complete scientific freedom is afforded the investigator. Although a project must be evaluated primarily on the merits of the proposal, the scientist is not required to pursue the research plan outlined. Any bypath of research that holds more promise, or any revised plan that the investigator cares to adopt, may be followed at the discretion of the scientist. He must of course take the chance that his application for continuation of a project, so changed, may not be as acceptable to the responsible study section as the project originally reviewed and approved.

• **Basic research favored**—Research projects related to environmental health are eligible for grants-in-aid, but the established policy is to recommend only those of a fundamental or basic research character. Although the Public Health Service, in many of its programs, supports demonstrations and investigations that are not research, it is important to note that the very title "Research Grant" connotes a requirement of distinction between projects that are only demonstration or control and those that are research.

It is realized that many projects in sanitation are a combination of demonstration, control, and research; in such cases, determination must be made by the study section as to where true emphasis lies. Research may be theoretical analysis or experiment leading to increased knowledge of general theory or law of natural phenomena, or it may be a collection of information required preliminary to research projects or source data for the proper conduct of the projects. In the field of environmental health, research may include the application of any such basic data toward the devising of a new technique, method, or piece of equipment; or it may be merely the testing of such techniques, methods, or equipment for the purpose of determining clinical or experimental uses.

If the emphasis of the proposed project does not fall within this general definition of research but, after evaluation, appears to be a project that has as its purpose either demonstration or control, then it is unlikely to receive support. Taking a proved device or technique into an area for the purpose of demonstrating its effectiveness for other communities is not research. Installing a new type of equipment the worth of which has already been shown is not research.

PARTIAL LIST OF PROJECTS SUPPORTED TO DATE

1. **Water**
   - Research on the causative substances that promote algae growths and their subsequent control.
   - Instrumental methods for detecting small amounts of chemical contaminants in water.
   - Methods for detection and rate of survival of an enteric virus under varying environmental conditions in water.
2. **Waste Disposal**
   - Studies on the disposal of cyanide and other toxic wastes which are a definite hazard to public surface water supplies.
   - Fundamental research on air dispersion in the activated sludge process.
   - Survival of tubercle bacilli in sewage treatment processes.
3. **Insects and Rodents**
   - The nature, causes and control of house fly resistance to insecticides.
   - Biology of rat poisons.
4. **Food**
   - Incidence and significance of intestinal pathogens in sewage-contaminated irrigation water and on food products irrigated with this polluted water.

• **To qualify**—A project may satisfy these definitions of research and still not merit support. Superior and inferior applications are received, and each must be subjected to such tests as the following:

1) Is the investigator competent to do the work proposed?

2) Is the problem significant?

3) Will the applicant have the necessary facilities to do the work?

4) Does the project director have so many other responsibilities that he cannot give the necessary time to the research?

5) Is the budget requested reasonable in relation to the work proposed? For example, does the budget include items of equipment that are not justified?

6) Is the proposal clearly defined, and planned with comprehension of previous work related to the problem?

7) Is collaboration when necessary from fellow scientists or other agencies definitely assured?

In the field of environmental health, 78 research projects have been supported during the period September, 1946, to November, 1951, on recommendation of the environmental health study section and the national

advisory councils. These 78 research projects may be grouped into the following categories showing the number of projects and funds approved for each:

Category	No. of projects	Amount approved
Water	20	$394,691
Sewage	20	359,159
Industrial waste and stream sanitation	8	262,663
Atmospheric pollution	9	246,900
Food	9	135,479
Rodent control	3	98,010
Insect control	4	64,758
Milk and milk products	2	28,804
Swimming waters	2	6,808
Soil microbiology	1	3,953
	78	$1,540,625

Thirty-one of these projects have been completed and 47 are in active progress.

• More research needed – Public Health Service consultants who are members of the environmental health study section are unanimous in their advice that much additional good research should be initiated in the field of environmental health. It is their consensus that many problems need further development.

These include: research additional to that being done to provide more economic methods and improved scientific techniques for bacteriological, chemical, and physical analyses of water, sewage and industrial wastes; microbiological investigations of the vegetable-growing industry in connection with sewage-polluted irrigation waters, research in industrial wastes for the purpose of preventing stream pollution; problems of atmospheric pollution in relation to radioactive material; studies pertaining to biological, chemical, and physical aspects of air pollution for the control of virus infections and toxic substances; bathing place sanitation; research in the hygiene of housing and research in accident prevention.

The environmental health study section, organized in the fall of 1946, has subsections on milk and food; insect and rodent control; water, sewage, and industrial wastes; industrial hygiene and atmospheric pollution; and housing. Its present membership includes the following authorities:

V. M. Ehlers, Texas State Department of Health, chairman.

F. C. Bishopp, Department of Agriculture.

Major Jack C. Carmichael, Department of the Air Force.

Rolf Eliassen, Massachusetts Insittute of Technology.

Harold B. Gotaas, University of California.

H. O. Halvorson, University of Illinois.

W. C. L. Hemeon, Industrial Hygiene Foundation.

Lt. Col. R. J. Karpen, Department of the Army.

V. G. MacKenzie, PHS Environmental Health Center.

Theodore A. Olson, University of Minnesota.

Capt. F. R. Philbrook, Department of the Navy.

Frank Princi, University of Cincinnati.

C. C. Ruchhoft, PHS Environmental Health Center.

The writer is executive-secretary of the study section.

Swift stream stilled for pier repair

A six foot-per-second current not only weakened the piers of a bridge in Tasmania; it made elaborate protective works necessary during repairs.

The bridge crosses the River Derwent. Built in the early days of the colony, its piers are of sandstone. Swift current had eroded mortar from the block masonry joints. The method adopted for pier repairs was to install a circumferential band of concrete placed in water at prevailing river level. Effective concrete placement required still water, which was established by four steps:

1. A rock breakwater upstream, to divert high velocity from a pier.

2. A timber wall about 6 ft outside the pier line—staked in place and tied to the pier.

3. Sandbag walling inside the timber wall.

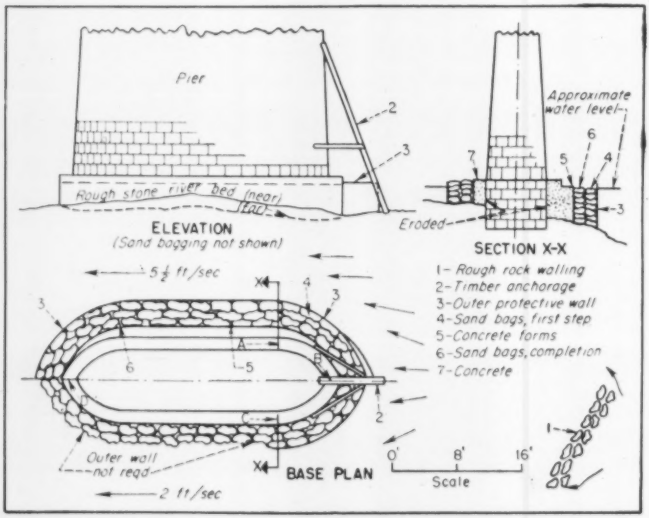
4. Concrete forms inside the sandbags—the forms braced from the pier.

Although methods varied in some details from pier to pier, the drawing illustrates the principle. Access to the work was from the bridge deck above. An anchorage for the outer wall's upstream end was provided by an inclined timber as shown. A layer of sandbags was placed tight against the outer wall, then men working in the shallow water scoured the masonry, cleaned off the bottom, and anchored dowels in the masonry joints. Next, they set concrete forms and tight-packed more sandbags in the space between forms and the outer wall.

With water stilled and forms in place, the job was ready for concrete.

Headers in the forms at A, B and C sectionalized the concrete work (presumably placement was by tremie), BA and BC being placed first. The remainder of the pour began at D, progressing along both sides to A and C. A rich 1:2:2 mix was used, as much as 21 cu yd going into one pier repair. During placement, men with tamping rods worked concrete into the cleaned-out joints in the masonry.

This information comes from "The Surveyor" (of London) which acknowledges an original article in "Commonwealth Engineer." Melbourne, by H. F. Ginn, Tasmania Department of Public Works.



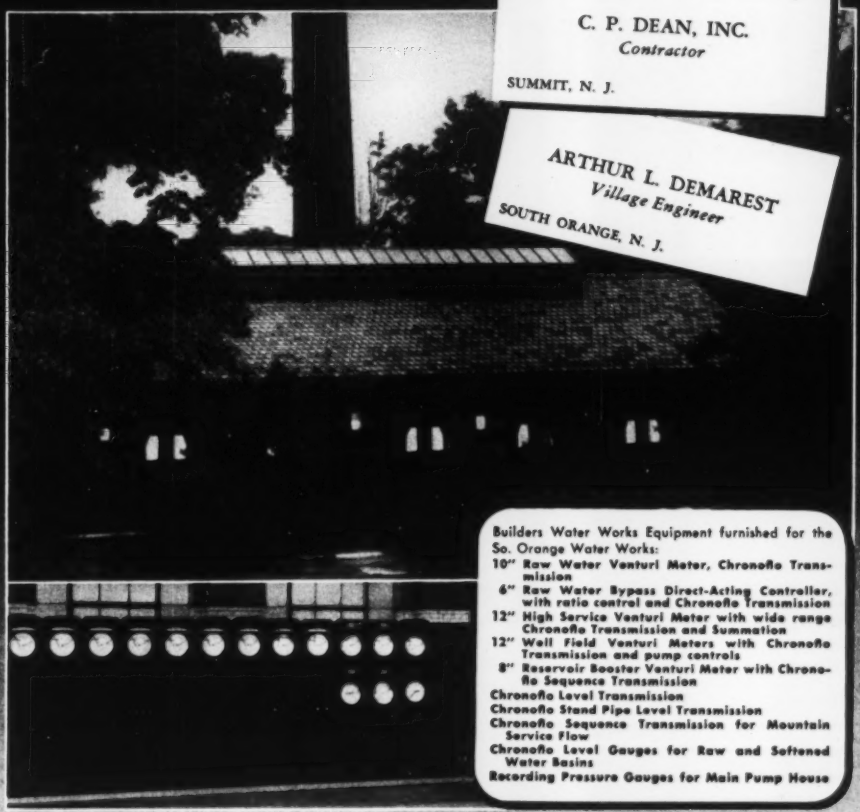
TASMANIAN BRIDGE PIER gets a band of protective concrete in zone where fast water had eroded mortar from joints in sandstone masonry. Stone breakwater upstream slows water; walled sandbags still water where tremie concrete is placed.

SO. ORANGE, N. J.
Water Works
(REVISIONS COMPLETED IN 1950)

PHILIP B. STREANDER
& AFFILIATES
Consulting Engineers
NEW YORK, N. Y.

C. P. DEAN, INC.
Contractor
SUMMIT, N. J.

ARTHUR L. DEMAREST
Village Engineer
SOUTH ORANGE, N. J.



Builders Water Works Equipment furnished for the So. Orange Water Works:

- 10" Raw Water Venturi Meter, Chronoflo Transmission
- 6" Raw Water Bypass Direct-Acting Controller, with ratio control and Chronoflo Transmission
- 12" High Service Venturi Meter with wide range Chronoflo Transmission and Summation
- 12" Well Field Venturi Meters with Chronoflo Transmission and pump controls
- 8" Reservoir Booster Venturi Meter with Chronoflo Sequence Transmission
- Chronoflo Level Transmission
- Chronoflo Stand Pipe Level Transmission
- Chronoflo Sequence Transmission for Mountain Service Flow
- Chronoflo Level Gauges for Raw and Softened Water Basins
- Recording Pressure Gauges for Main Pump House

This community, known to its 15,000 residents as "The Village", covers the top and easterly slope of the South Mountain. Due to a total elevation difference of about 500 feet between three Water Service Areas (Low, High, and Mountain), The Village water supply problem is far from simple. By employing an integrated system of high lift pumps, reservoirs, booster stations, and elevated storage tanks, however, the So. Orange Water Works adequately serves the needs of this suburban community.

Recently the So. Orange Water Works was revamped to provide increased capacity and greater operating efficiency. In addition to Builders Flow Meters and Controllers, the improvements include Chronoflo Telemeters which bring vital information from distant locations to a central control panel, greatly facilitating plant operation. For Bulletins describing Builders Water Works Equipment, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

B-I-F INDUSTRIES

BUILDERS-PROVIDENCE

BUILDERS

SPECIAL ROTARY DRILL with expanding auger on a 120-ft telescoping spline shaft sinks variable-diameter holes.

TELESCOPING CASINGS are retracted in one package by a 100-ton lifting rig as caissons are filled with concrete. Timber mat supports nest of casings above completed caisson. Excavation is removed by truck, as in photo at left.

Big bell-bottom caissons will support Detroit's second Civic Center building

DOWNTOWN DETROIT, MICH. has a good load-bearing stratum for its skyscrapers, but that stratum is a long way down—from 115 to 117 ft below street level.

Heavy structural loads of the new City-County building will be transferred to this conglomerate hardpan—capable of carrying design loads of 25 tons per sq ft—by large-diameter cast-in-place concrete caissons.

The caissons extend from 90 to 92 ft below basement grade, which is 20 ft below street grade. Holes for the caissons are sunk by a special rotary drill, with an expansion auger—similar to the method used in caisson-drilling for the Veterans' Memorial Building (ENR Sept. 30, 1948, p. 68).

• **Bell-bottom caissons**—The caissons are cast-in-place inside a set of nestable steel casings of 2-in. diminishing diameter for each 16-ft section. Top diameters of the caissons vary from 58 to 84 in. They are belled out at the bottom on a 1 on 2 slope, with a 12-in. thick pad at the bottom of the bell.

It will take 126 of these big caissons to support the building which, in reality, is two structures—a 262x200-ft, 15-story city office building, and a 200x154-ft, 20-story county court building.

The two structures, to be linked by a bridge at each floor, will provide a total of 738,000 sq ft of office space for the administrative functions of Wayne County, Detroit, and the Wayne County courts.

This steel-frame building—the second unit in Detroit's civic center development—is located near the river front, at the northeast corner of Woodward and Jefferson Avenues.

• **Finished this year**—Construction of the first caisson was started early last August. By Nov. 13, the number of caissons completed totaled 104, and the foundation contractors plan on finishing their job in December of this year; one month ahead of schedule. The job worked three 8-hr. shifts per day, five and sometimes six days per week.

The foundation contractors on the city-county job also had sunk 15 big caissons for the Veterans' Memorial Building back in 1948. Profiting by their experience on that job, they have simplified caisson construction on this job to nearly a routine procedure.

As an example, an 84-in. (top-diameter) caisson was drilled, belled out and concreted in 24 hr. This is how they do it:

• **Drilling the holes**—Working at basement level in the area previously excavated by the general contractor, the caisson contractors excavate a square hole, 6-in. larger than the top diameter of the caisson and from 6- to 8-ft deep, at the site of a caisson to be drilled. Later, these starting pits will be filled with concrete to form caisson caps with intersecting beams on top of the caissons.

Caissons are drilled with a 1¼-cu yd bottom-dump auger, mounted on the bottom of a telescoping spline shaft that has a 120-ft maximum extension. Four "Kelley" bars welded lengthwise of the shaft reinforce it for added resistance to torque.

The drilling rig is mounted at the front of an all-electric crane, and the spline shaft and auger are powered by a 75-hp electric motor.

• **Expanding auger**—The auger has a nominal cutting diameter of 48-in., equal to the diameter of the smallest section of caisson on the job. For drilling holes larger than 48-in., two adjustable reaming knives at the top of the auger are adjusted to the proper length.

During clockwise rotation these knives turn out and cut to the required diameter, dropping the material into the top of the auger. At the same time the auger continues boring at the bottom of the hole. During counterclockwise rotation, the knives fold in against the auger.

Following completion of the top 16 ft of hole, the first 16-ft section of steel casing is lowered into position. Cutting knives on the auger are retracted 1-in.; a second 16-ft depth of hole is bored, and encased with the second section of casing which is 2-in. smaller in diameter than the top section.

This procedure is followed until the hole is bored to its proper depth and cased with six sections of the nestable casing. Two sets of casings are provided for each size of caisson.

As would be expected, boring varies from fairly easy at the top of the hole to extremely hard just before reaching the bottom. When boulders are encountered they must be removed by workmen lowered into the hole.

After a hole has been bored to its full depth, and all casing installed, field tests are made and soil samples are taken from the bottom of the hole to determine the diameter of the caisson-bell, depending on the soil bearing value.

Original design of caisson shafts and bells was based on a 15-ton per sq ft design limit for bearing. But the material at the bottom of the holes has such a high carrying-capacity that bell-diameters are redesigned from the field tests to carry loads based on a 25-ton per sq ft design limit.

• **Penetrometer tests**—Allowable bearing pressures are determined with a "Penetrometer," with allowable bearing values based on a pressure formula which takes into account bearing capacity, pressure ratio and diameter ratio of the testing equipment and the bell of the caisson.

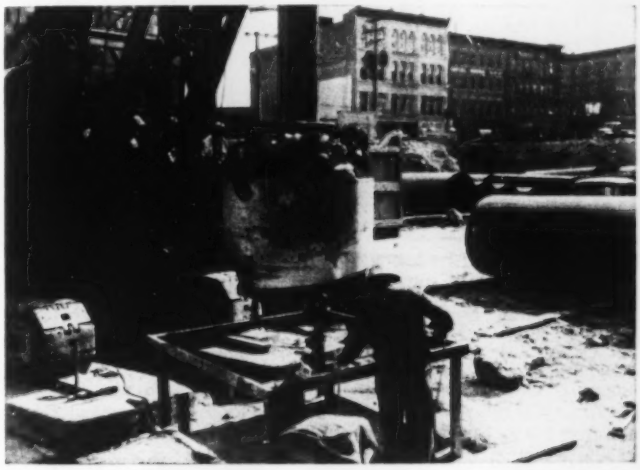
There is no delay in determining the diameter of bell to be used for each column. As soon as the field engineers have made their tests at the bottom of the hole, a simple calculation determines the diameter of bell needed. As a check, soil samples are shipped to a laboratory for confined compression and shear tests.

The belled-out portion at the bottom of each caisson is excavated by workmen with air-spades. The material is hoisted out of the hole by an electric hoist housed in a 4x15-ft steel frame "dog-house" spotted over the hole.

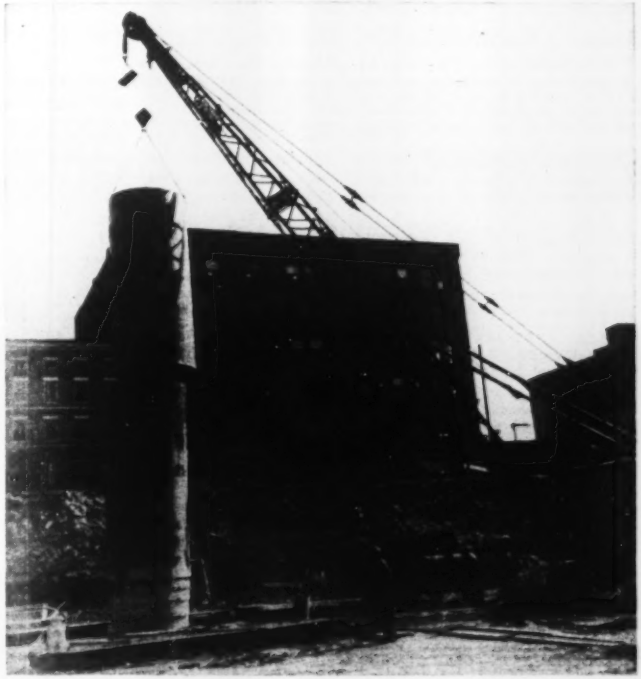
• **Placing the concrete**—There are 11,000 cu yd of concrete in the 126 caissons. It is delivered to the job in ready-mix trucks and chuted into the cased holes.

The concrete chute also is telescoping. It is made up of four 24-ft sections of 8-, 10-, 12-, and 14-in. dia. pipe; the larger pipe being at the bottom of the hole. One workman is in the hole while placing concrete. The concrete is not tremied into place; the bottom of the chute being kept about 4 ft above the top of the concrete.

The casings are retracted as the hole is filled with concrete; each telescoping into the one immediately above. But the rate of retraction is such that the bottom of casing is always from 4- to 6-ft below the top of the concrete. Concrete in the caissons has a



CLOSE-UP OF AUGER—Special reaming knives at top of 48-in. dia auger permits enlarging the holes to 84 in.



TO READY THEM for the next pour, a nest of six 16-ft lengths of casings are dismantled by crawler crane, cleaned and oiled.

2-in. slump and it tests at least 3,000 psi compression at 28 days.

• **Pulling the casings**—Casings are lowered into the holes with a crawler crane, but they are removed from the hole with a special pulling rig. This rig is positioned over the hole by a crawler crane. It has four legs—one pair is trussed steel pipe; the other pair being braced steel beams which mount the hoisting equipment. The complete rig has a maximum pull of 100 tons.

The 6 nestable sections of casing are pulled out of the concrete-filled hole by the lifting rig, and seated on a platform of 12x12-in. timbers laid across the starting pit at the top of the caisson. The lifting rig is then removed by crawler crane and placed over another caisson being concreted.

In the meantime the first nest of casings is dismantled by crawler crane, cleaned and oiled on the inner surface. The telescoping concrete cute is retracted by the same yoke that pulls the casing out of the concrete-filled hole. It is laid out on the ground, dismantled and hosed clean.

• **Architects and engineers**—Harley, Ellington & Day, Inc., architects and engineers, Detroit, are designing the City-County building and furnishing field supervision. Raymond C. Mauck is resident engineer. Other H. E. & D. men connected with the project include: Malcolm R. Stirton, partner; Benson J. Wood, chief structural engineer; and Fred J. Hildebrandt, manager of construction.

Soil studies and laboratory analyses were made under the direction of Prof. Wm. S. Housel, University of Michigan.

• **Contractors**—O. W. Burke Co., Detroit, is the general contractor, and the Raymond Concrete Pile Co., holds a subcontract for sinking and concreting the 126 caissons.

Burke's general superintendent is Fred Fletemeyer. Raymond's top men on the job include: Harry Runkel, general superintendent; construction superintendents Charles Bates, George Boggiano and Charles Reed; Howard Wipf and Jack Gatlin, assistant superintendents; and Karl Smythe, job engineer.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Construction of contracts

"Referring to construction of cost-plus contracts, Williston declares that the familiar rules for the construction of contracts generally are applicable. Thus, 'The primary rule is to ascertain and give effect to the mutual intention of the parties, so far as it may be done without contravention of legal principles. Greater regard is to be had to the clear intent of the parties than to any particular words which they may have used in the expression of their intent. A contract must be considered as a whole and the intention of the parties is to be collected from the entire instrument and not from detached portions. The individual clauses and particular words must be considered in connection with the rest of the agreement, and all parts of the writing and every word of it, will, if possible be given effect. The words of contracts should be given a reasonable meaning rather than an unreasonable one and a court will endeavor to give a construction most equitable to the parties and which will not give one of them an unfair or unreasonable advantage over the other. * * * Where the parties to a contract have given it a practical construction by their conduct, as by acts in partial performance, such construction is entitled to great if not controlling weight in determining its proper interpretation.' Williston, Contracts, (Rev. Ed.), vol. 9, sec. 46, p. 64

"Of course, the law will not make a better contract for parties then they themselves have seen fit to enter into, or alter it for the benefit of one party and to the detriment of the other. The judicial function of a court of law is to enforce a contract as it is written."[1]

"A government contract should be interpreted as are contracts between individuals with a view to ascertaining the intention of the parties and to give it effect accordingly, if it can be done consistently with the terms of the instrument."[2]

If persons choose to be so improvident as to enter into a one-sided contract, they are bound by its terms and courts are powerless to relieve them from the effect of what later may appear to be a bad bargain.[3]

Language used in a contract prepared by one of the parties thereto, which is susceptible to more than one construction, should receive such a construction as the party preparing it at that time supposed the other party would give it, or such construction as the other party would be fairly justified in giving it.[4]

"The general rule is that, in the absence of anything to indicate a contrary intention, instruments executed at the same time, by the same parties, for the same purpose, and in course of the same transactions, are, in the eye of the law, one instrument, and will be read and construed together as if they were one in form as they are in substance."[5]

Courts do not, and cannot, undertake to make a new contract for the parties. An implied provision is only inserted to carry out the manifest intention of the parties.[6]

Every agreement ought to receive a reasonable construction, and the true intent of the parties is to carried into effect.[7]

(1) Washington Const. Co., Inc. v Spinela, 80 A. 2d 318 and cases there cited.
(2) Girdler Corp. v Charles Eneu Johnson Co., 95 F. Supp. 713, citing Hollenbach v. U. S., 233 U. S. 165, 58 L. Ed. 898.
(3) Harry R. Rosen & Co. v. Eksterowicz, 73 A. 2d 648.
(4) Bradway v Higgins, 42 N.W. 2d 627.
(5) Employers Mut. Casualty Co. v Brazda, 42 N.W. 2d 195.
(6) Carter Oil Co. v Dees, 92 N.E. 2d 519.
(7) Aero Motive Sales Corp. v Wausau Motor Parts Co., 42 N.W. 2d 141.

Substantial performance of construction contracts

The Supreme Court of Mississippi, in recent case[1] involving the principle of substantial performance of construction contracts stated: "In equity it has generally been held that, where a contract has been substantially performed, the party so performing may recover as for a completed performance, less such damages as the other party may have been put to by reason of the matters not performed."[2]

The court pointed out that the principle stated above was applied in another case[3] where "the court made it clear that a contractor could not invoke the rule of substantial performance unless he had acted in good faith and the court made the further statement that 'the rule of substantial performance cannot be invoked where the failure to perform is wilful, intentional, or due to carelessness, unless the omission falls within the category of de minimis [a legal term meaning that the law does not care for little things], or unless the omission, though intentional, is due to a belief that performance in that respect is not required.'"

(1) Darby Lumber Co. v Hill, 48 So. 2d 484, Supreme Court of Mississippi, Nov. 13, 1950.
(2) Hickory Investment Co. v Wright Lumber Co., 122 Miss. 825, 119 So. 508.
(3) Standard Millwork & Supply Co. v Mississippi Steel & Iron Co., 205 Miss. 26, 38 So. 2d 448.

Fastens steel or wood to concrete or steel in seconds!

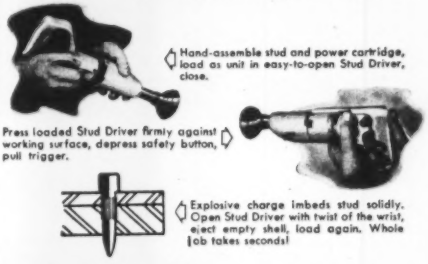
NEW CARTRIDGE-POWERED MODEL 450

REMINGTON STUD DRIVER

Sets fastening studs up to 100 times faster than conventional methods...needs no outside power source

You can speed construction and maintenance fastening jobs and cut costs with the amazing new Remington Stud Driver. This simple tool attaches steel or wood pieces and fittings to concrete or steel . . . easily sets as high as 5 fastening studs in a minute. No outside power source or other equipment needed. It's compact, rugged, *safe*. Test-proved to be the world's finest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., America's oldest and foremost sporting arms manufacturer. For detailed information and the name of your nearest distributor, fill out and mail the coupon below. There may be slight initial delays on delivery until production and distribution catch up with demand.

How to operate the Model 450 Remington Stud Driver



Hand-assemble stud and power cartridge, load as unit in easy-to-open Stud Driver, close.

Press loaded Stud Driver firmly against working surface, depress safety button, pull trigger.

Explosive charge imbeds stud solidly. Open Stud Driver with twist of the wrist, eject empty shell, load again. Whole job takes seconds!

Speeds all these jobs . . . and many more

1. Hanging steel sash and door bucks to concrete and brick.
2. Anchoring wood plates to concrete floors and ceilings for setting partitions.
3. Fastening wood furring strips to concrete for attachment of metal lath.
4. Anchoring suspended ceilings, sprinkler systems and lighting fixtures to concrete.
5. Attaching conduit and panel boxes to steel and masonry.
6. Anchoring light machinery to concrete pads.
7. Erection of signs, awnings and venetian blinds on steel or masonry.
8. Hanging radiator housings to concrete or brick.

LOOK AT THESE EXCEPTIONAL FEATURES

COMPACT AND PORTABLE — Weighs only 5½ pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

SPEED—One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets stud at whatever depth is required up to 2¾ inches, depending on material.

ELIMINATES INVESTMENT IN OUTSIDE POWER — Self-powered. Especially useful in isolated places.

TRIPLE SAFE—Plainly visible red dot indicator shows when it's cocked; safety must be depressed before and during squeezing of main trigger; permanently attached safety shield must be compressed against work before Stud Driver will operate. Trigger can't be accidentally tripped. Slight recoil. Low noise level.

WIDE VARIETY OF STUDS are available for every fastening job. Genuine Remington studs are trademarked for user's protection. Pull-out resistance as high as two tons in good concrete, depending on stud used. Cartridges are available in 5 power loads covering practically all fastening needs.

UNIQUE, FAST ASSEMBLY OF STUD AND CARTRIDGE—Tough plastic heel cap permits lightning assembly of any cartridge with any stud, identifies power load, protects head and thread of stud during driving.

PRICE for Model 450 Remington Stud Driver complete in rugged steel carrying case—only $119.50.

MAIL THIS COUPON TODAY FOR FURTHER INFORMATION

Remington Arms Company, Inc.
Industrial Tool Division
934 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining detailed information on the Model 450 Remington Stud Driver.

Name _____

Firm _____

Position _____

Address _____

City _____ State _____

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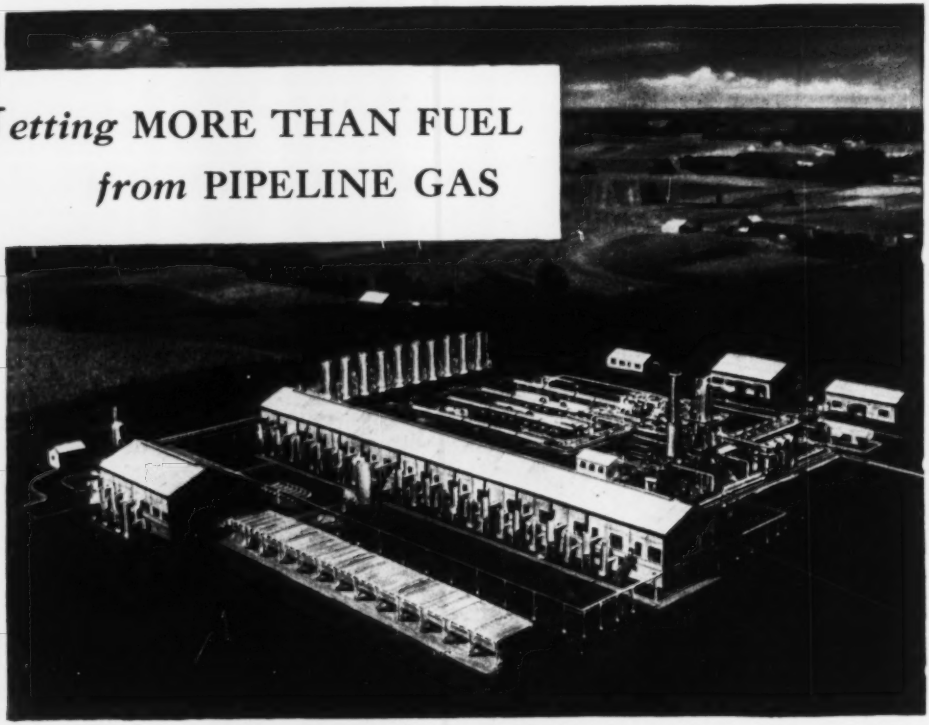
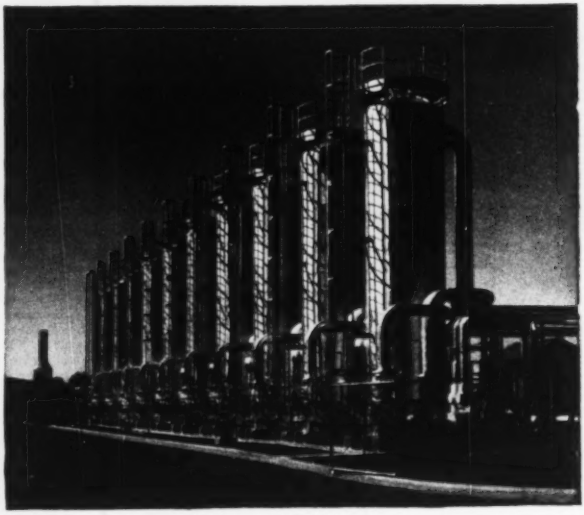


Hydrocarbon Extraction Plant, Tennessee Gas Transmission Company

This plant of the Tennessee Gas Transmission Company at Gabe, Kentucky, is the first of its kind to be constructed adjacent to a major natural gas transmission line, for the further extraction of bottled gas and aviation and motor gasoline components from "dry" pipe line gas.

Stone & Webster Engineering Corporation made a report and appraisal of the economics, feasibility and best location for the project and was employed for the design and construction of the plant.



Battery of Dehydrators

STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

READER COMMENT

Addenda on Kansas floods

Sir: Naturally, I have read with considerable interest your issue of 4 October, both the editorial on the Salina, Kansas situation and the article by Mr. Carr on the Kansas flood cleanup. Certainly, a fair and comprehensive coverage of the subject has been presented. There are, however, three points which were not presented in either the article or editorial which are essential to complete the picture.

(1) It was stated that the Corps of Engineers financed the cleanup work in certain Kansas towns. This statement will be misunderstood by many. The Corps engaged in post-flood emergency cleanup and restoration in Kansas and Missouri from July 17 to August 10. About $2,800,000 was expended on this activity under the Corps of Engineers' supervision. The Corps did not finance or reimburse or pay any agency for work it performed or had performed except where such work was done directly under our direction and control. No payments were made to cities or other public agencies. Practically all work under Corps supervision was performed by private contractors as indicated in Mr. Carr's article. This cleanup and rehabilitation work was funded out of available flood control funds, and it is expected that flood control funds will be reimbursed from funds appropriated under P. L. 875 and available to the House and Home Finance Administration (Raymond Foley).

(2) The future of flood control at Salina is not dependent exclusively on Kanopolis Reservoir as would be implied from the editorial and Mr. Carr's article. Local protection works for Salina in the form of levees and channel improvements have always been considered essential and have been recommended by the Corps. This recommendation is now before Congress in House Document 642, 81st Congress, 2d Session. Completion of these local improvements would have prevented any flooding of Salina from the Smoky Hill River and Dry and Mulberry Creeks in 1951. I believe failure to mention the proposed local protection plan and its potential importance to Salina has unfavorably distorted the flood protection picture there. Certainly, we cannot expect to give protection everywhere exclusively by dams and reservoirs. Levees and channel improvements will generally be a part of any effective flood control plan of any scope.

(3) Kanopolis functioned as a team with Cedar Bluff Reservoir about 150 miles up the Smoky Hill River. Cedar Bluff was completed this year by the Bureau of Reclamation and was an essential element in flood reduction below the dam sites.

I trust you will not take the above as being critical, but rather as presenting additional facts of major importance in the picture.

L. J. Lincoln
Colonel, Corps of Engineers
District Engineer
Kansas City, Mo.

Congestion compounded

Sir: I read with interest your fine reporting job on the remodeling of the Brooklyn Bridge in the October 25 issue.

But I cannot help but reflect on the relationship of this job to the modern problem of street congestion and modern approaches to this unhappy condition of widespread congestion.

Transportation devices are but means to an end. The aim is the transportation of John Q. Citizen, his wife and his goods from where they are to where he wants them. When I call at an office I call to see "Mr. Jones", not "Mr. Jones's Automobile". If the car comes into town at all it is to carry Mr. Jones, and then only in case of necessity will our Mr. Jones take the trouble of looking up parking space, etc.

I cannot help but conclude that the people who designed the Brooklyn Bridge for two lanes of public vehicles and one of private vehicles were nearer the mark than those who designed the new job. You say that the new arrangement will handle 6000 cars a day, presumably 3000 each way. That is equivalent to the capacity of one modern trolley car line for an hour each way, with seats for all. It is also equal to most of the parking spaces from Brooklyn Bridge to Bowling Green.

Those familiar with the area will recall several ways in which this crossing could have been arranged to provide suitable public transportation, with proper connections on both ends. It will also be recalled that there are areas near the Brooklyn end where parking for 3000 or 6000 cars could be provided much cheaper than in Manhattan.

These facts convince me that this job and others similar must in the future be planned to afford public transit sufficiently attractive to induce people to leave their cars outside the congested area and ride into town. A new Brooklyn Bridge, leading to a traffic jam, or the Battery Tunnel, leading to a garage, or the Lincoln Tunnel, also leading to a garage, seems to me to betray a failure to reason clearly and seek an economical solution to modern transportation problems.

John G. Kneiling
Staten Island, N. Y.

Plenty of fabricated timber

Sir: In a recent editorial you stated that "a really startling discovery would be that through better design and more efficient use available supplies of materials could be stretched as much as 20 percent." I believe you will be interested in knowing what the Timber Engineering Company, an affiliate of the National Lumber Manufacturers Association, is doing in that direction to aid architects and engineers.

First, we are assuring them that there is plenty of timber for **both** defense and civilian needs and that timber fabricators in all sections of the country are ready to serve them. Lumber production in 1952 will be around 37 billion feet the same as this year.

Second, we are now offering them free of charge our 116-page book "Typical Designs of Timber Structures" which contains 88 designs that will serve them as guides in designing to fit their specific needs for schools, churches, industrial and commercial buildings and all types of structures for the military. For example, referring to your suggestions of trying to stretch materials by 20 percent, our Lank-Teco design of combination pitched-flat truss in a 48 ft span has shown savings up to 50 percent in materials and labor over a similar flat Pratt truss.

In a full size test the Lank-Teco truss carried almost 2½ times its design load before failure. Also, in comparison with the Pratt truss, it carried more load with less than half the deflection.

During World War II the lumber industry made an outstanding contribution in helping meet both the military and civilian needs. Wood was used extensively in schools, churches, hangars, towers, bridges, warehouses and all types of military installations. Today it is prepared to do an even better job.

A typical World War II example of steel conservation made possible by the use of wood construction with timber connectors was a Navy blimp hangar, 1,000 ft long, 153 ft high.

(*Continued on page 50*)

For Top Flight Gas Welding

Choose from AIRCO'S complete line of Oxyacetylene Welding Supplies

Time Proved . . . Job Tested . . . Money Saving

Available from Local Stocks

That's right! Whether you use a popular Airco gas welding rod, flux, or brazing alloy for production or maintenance operations . . . you're certain of top-notch work—ask any one of the thousands of welders who swear by these Airco oxyacetylene welding supplies.

This well-recognized reputation for top performance didn't just happen—more than thirty years' experience and development have gone into the manufacture of these outstanding gas welding supplies . . . know-how that produces high quality, reasonably-priced items that guarantee a job done faster, done better, done easier and done at less net cost.

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For further information about Airco's oxyacetylene welding supplies which includes a complete line of rods, fluxes and brazing alloys, write your nearest Airco Office or Authorized Dealer for a free copy of Catalog 12.

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(*Continued from page 49*)

with a roof span of 237 ft. Without the use of timber connectors, this structure could not have been made of wood, and would have required 2,050 tons of structural steel.

Approximately 200,000 tons of structural steel were saved in a single World War II military construction program by the use of timber connector construction.

Each pound of steel allocated now to the manufacture of timber connectors and other hardware used in timber connector construction will release 10 pounds of steel for defense purposes, the same as occurred in the last war, and the industry's capacity to produce glued laminated timber construction has made great strides. In the Washington-Baltimore area alone James H. Carr, Inc. advised us that in recent months they replaced steel construction with either timber connector or glued laminated construction in some 25 jobs, and they are producing now for 5 schools, 4 churches, 7 commercial buildings, 3 industrial buildings and 2 government jobs.

It is significant that the Army has approved glued laminated timber construction as an equal to steel in their "permanent" warehouse construction.

We have just completed a survey in which 34 timber fabricating companies, out of 54 contacted who produce timber trusses and other fabricated parts, have reported to us. On the basis of an 8-hr. shift, 5 days a week, their total annual capacity in terms of M feet of lumber is 317,156. An additional conservative estimate of timber roof trusses, etc., fabricated in 1951 by contractors is 109,000M. Marine wood laminating totals 30,000M, and 47 prefabricated house manufacturers—who could readily convert to roof truss production—have a capacity of 768,000M. This brings the total estimated annual capacity on a one-shift basis to 1,224,156M. Quite a number of the firms reported that if necessary they would go to 2 and even 3 shifts.

The progress in prefabricating lumber has been rapid and, through lumber firms and contractors, the capacity can be expanded quickly. Also, the lumber industry is prepared now to supply prefabricated timber trusses in clear spans from 25 to 200 ft, along with the required framing, siding, flooring, etc.

Short of all-out war, so far as the lumber industry is concerned, we confidently believe it is prepared now to take care of the military needs and without slowing up civilian construction.

HARRY G. UHL, President
Timber Engineering Company
Washington, D. C.

For greater yield in plant or field . . .

REPLACE WITH ONE OF THESE

BIG ROCKWELL METERS

Big water meters are a major investment. Their true worth must be based on their revenue earning performance—their freedom from breakdowns and sticking—their economy to repair.

Cost-minded water works engineers specify big Rockwell meters because they will earn more revenue and yield more service per dollar invested. You'll find them simple, easy to repair, and constructed with typical Rockwell care from the finest materials obtainable.

Immediate deliveries can be made from warehouse stocks in most areas.

Use JOY AIR-POWER and TOOLS

for all-around best performance

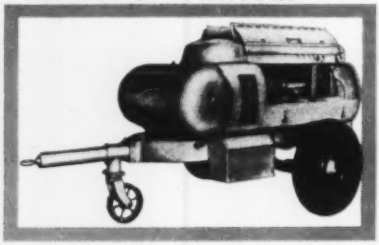
ON THE JOB

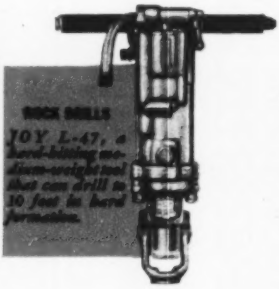
JOY Portable Compressors and "Silver Streak" Air Tools make a highly efficient, time-and-money-saving team—the most modern units you can put on the job. They're light, compact and easy to handle, yet ruggedly built for real heavy-duty service. JOY Portables are available in seven sizes, ranging in capacity from 60 to 630 CFM at standard pressure. JOY Air Tools feature the exclusive "Dual Valve" that makes air do more work, plus cadmium plating for better lubrication, closer tolerances, and prevention of rust and scoring. • Let us show you how JOY equipment can reduce your costs, and produce more work per man-hour. *Write for bulletins, and ask for an actual demonstration.*

PAVING BREAKERS

JOY K-81, a rugged tool capable of sustained operation on the heaviest demolition work.

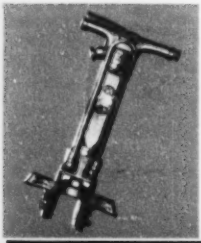
PORTABLE COMPRESSORS





ROCK DRILLS

JOY L-47, a hard-hitting medium-service tool that can drill to 30 feet in hard formations.

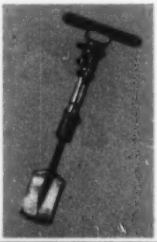


SHEETING DRIVERS

JOY Q-81, an adaptation of the K-81 for driving wood or light steel sheeting.

BACKFILL TAMPERS

JOY C-35, an easy tool to handle, yet delivers powerful blows for faster tamping.



SPADERS

JOY M-2, a light tool for digging in clay, shale, hardpan, or hard-frozen ground.

Consult a Joy Engineer

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MUNICIPAL

Cities start anti-bottleneck drives

Off-street parking in various forms continues to be the great panacea for traffic troubles in our cities. Here are a few more dispatches from the congested fronts:

• **Baltimore, Md.**—The city has agreed to advance 85 percent of the $1,100,000 to be spent on two new downtown parking garages for 510 cars, or more than 1,000 a day.

• **Des Moines, Iowa**—There is now space for parking 430 more autos downtown since the new $600,000 elevator parking garage at Fourth and Locusts Streets has been opened. Three elevators which move up and down and sideways are whisking cars to eight floors. National Garages Inc. of Detroit, Mich., has leased the garages from the city. Rates are 30¢ for first-hour; 40¢ for two hours; 50¢ for three hours; 60¢ for four hours; 75¢ for five hours, and $1.00 for all day or all night parking—8 am. to 6 pm. and 6 pm. to 8 am. respectively.

• **Columbus, Ohio**—Traffic Engineer Ralph L. Wolf says that Columbus now ranks as the safest traffic city in the U.S. in the 250,000 to 500,000 population group, and he attributes this good record to the current traffic engineering program and good public education and police enforcement. All but four traffic lights in Columbus are now the 3-color lights required by law and those four will be replaced soon.

• **Buffalo, N. Y.**—Public Works Commissioner Frederick W. Crane is urging that a new traffic survey be made by the City Planning Commission with the cooperation of the Board of Safety, or by a firm of engineers. The commission made a study in 1949 but it is thought that a revised construction and operating policy is now needed because of new conditions.

Chicago okays garage under municipal park

CHICAGO—An ordinance authorizing the construction of a two-level garage accommodating 2,567 cars under Michigan Ave. and Grant Park, on Chicago's lake front, has been approved by the park district. The cost, estimated at $8,500,000, would be financed with revenue bonds.

A court test is expected to be filed soon to determine whether the park board has the authority to build underground garages through the sale of revenue bonds and whether garages under the park would violate an injunction prohibiting the construction of buildings in the park.

Plans and cost estimates for the project were submitted to the board by Ralph H. Burke, city airport engi-

(Continued on page 54)

DESIGN AGAINST THE SUN—Arizona's capitol annex in Phoenix features visors of concrete running the length of the building to shade windows all year, except during January and February. Windows are "head-high" and standard filing cases fit beneath them without interfering with window area. Building is 212 ft long, 50 ft wide. Builder is McGinty Construction Co., Phoenix.

On job after job these facts have been proved: air entrained concrete *with air content closely controlled by Darex AEA* places easier and faster, finishes better, has better surface texture, is more homogeneous and more durable when exposed to freezing and thawing. At no extra cost, ready-mix concrete plants everywhere can furnish concrete that offers you these same advantages . . . concrete made with Darex AEA. Ask your supplier, or write to us for full details.

The new 1000-bed Veterans' Administration Hospital, Boston, Mass. 26,000 cubic yards of concrete, all Darex AEA concrete.

CONSTRUCTION SUPERVISED BY: Col. H. J. Woodbury, U. S. Corps of Engineers

ARCHITECTS-ENGINEERS: Coolidge, Shepley, Bullfinch and Abbot, and Chas. T. Main, Inc., both of Boston

CONTRACTOR: McCloskey & Co., Philadelphia

CONSTRUCTION SPECIALTIES DIVISION

DEWEY and ALMY Chemical Company

Cambridge 40, Mass.

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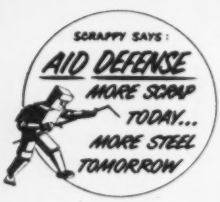

Let us try to help you . . . Sometimes we can relieve the pressure of customer's demands by suggesting alternate material or production changes which will help you get more use from the steel you use. Whatever your steel problem may be, why not put it up to United States Steel Supply?

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UNITED STATES STEEL

Municipal . . .

neer and former chief engineer for the park district.

The garage would extend for three blocks under Michigan Ave., one of the city's main boulevards. There would be two descending ramps from Michigan Ave., one for northbound and the other for southbound vehicles. Two ascending ramps into Michigan Ave. would be the exits from the garage.

Each of the two levels would have 400,000 square feet. The top floor would have space for 1,219 cars and the lower level for 1,348 cars. The structure would be built of reinforced concrete. Walls and stairs would divide it into fire control areas.

Only one bid received for sub-surface garage

Only one bid—of questionable legality because it contains conditions not authorized in the invitation—for construction of a proposed underground garage at St. Mary's Square located in San Francisco's Chinatown was received by the city's parking authority.

The St. Mary's Square Garage Corp., headed by Robert C. Barrett of the construction firm of Barrett & Hilp, turned in the solitary bid proposing that the corporation assume the operation on a 50 year lease, rent to the Authority to be $1 a month during construction not to exceed 18 months, $1,000 or 3% of gross income, whichever is greater, each month thereafter.

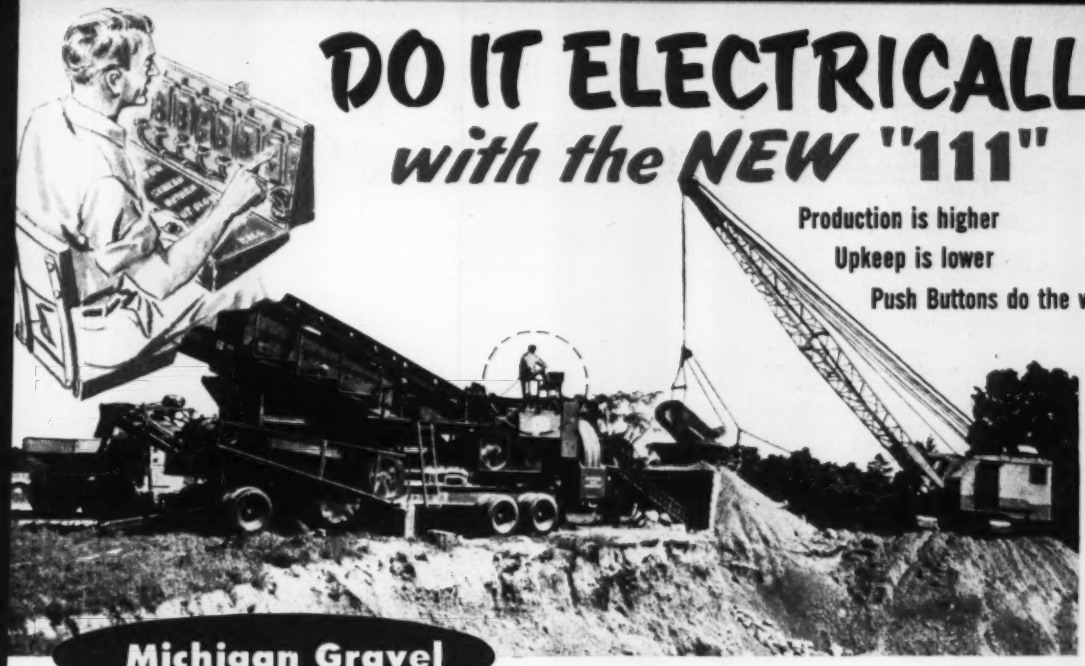
Surprise at the lack of response was expressed by Authority General Manager Vining T. Fisher who said: "We are particularly surprised at the lack of a bid from one certain group." He referred to a combine of the San Francisco Union Square Garage (underground parking space that has been in operation for more than five years) group and the builders of Los Angeles' Pershing Square Garage which issued a joint letter stating that expected profits from the St. Mary's operation would not be enough to provide "a reasonable margin of safety."

The authority has estimated that the proposed garage to provide more than 800 parking spaces at St. Mary's Square on the edge of the financial district could bring in $137,800 a year (before taxes) in revenue to a private operator. Authority General Manager Fisher is confident the garage will be built whether or not the present bid is accepted.

(*Continued on page 57*)

DO IT ELECTRICALLY
with the NEW "111"

Production is higher
Upkeep is lower
Push Buttons do the work

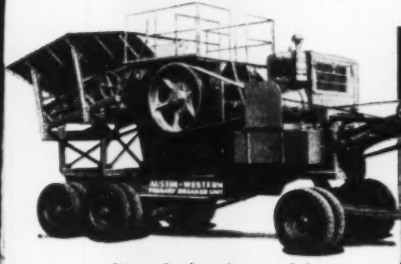


Michigan Gravel

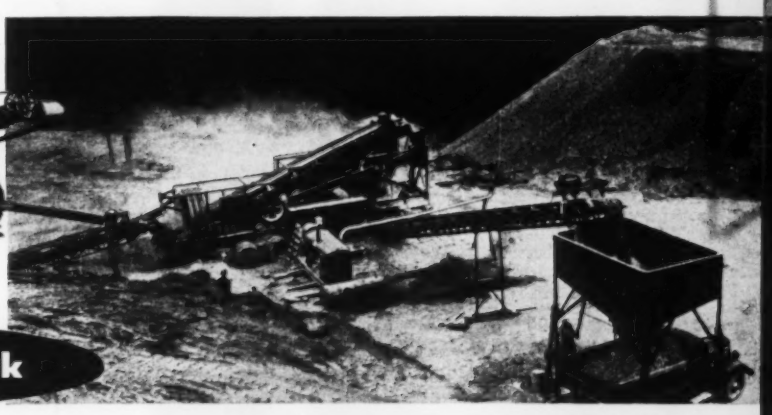
Production is higher—because each unit has its own electric motor drive; thus operates at top speed and efficiency at all times.

Upkeep is lower—because drives are simple and have few parts.

Push buttons do the work—the man on the platform starts and stops the feed and delivery conveyors, and has other units under complete control.



Primary Breaker units are made in several sizes; this one has a 3' x 10' apron feeder, 20" x 36" jaw crusher, power unit and delivery conveyor—all mounted on pneumatic tires.



Carolina Rock

The high production "111," with its 10" x 36" jaw and 40" x 24" roll crushers, is equally at home in gravel and rock. On this quarry job, production is still further increased by using a Primary Breaker unit with 32" x 40" jaw crusher (not visible in the photograph) to reduce the oversize to about 5 inches.

AUSTIN-WESTERN COMPANY · *Subsidiary of Baldwin-Lima-Hamilton Corporation* · **AURORA, ILLINOIS, U.S.A.**

Austin-Western

BALDWIN BLH LIMA-HAMILTON

JENKINS PRACTICAL PIPING LAYOUTS

57

How to plan

CONNECTIONS FOR COMMONLY USED TYPES OF METERS

In practically all industries meters are used to compute, accurately and automatically, the amount of flow. Fluids measured may be liquid, gas, or vapor (water, oil, gasoline, fuel gas, steam). Diagrams show the basic piping hookups for some of the more commonly used meters.

Orifice Type — generally used to indicate, totalize, and record moderate quantities of liquids, gases, or vapors.

Venturi Type — also indicates, totalizes and records. It is frequently used on condenser water supply units in power stations, water pumping stations, and sewage plants.

Area Flow Type — or Rotameter is for indicating, principally, in lines carrying fluids in moderate quantities.

Displacement Meter — usually totalizes only; this is the type used to measure water supply from city mains to buildings.

Valve recommendations include bronze, for ordinary service, and stainless steel where corrosive liquids are handled. Jenkins Fig. 106-A Bronze Globe is especially suited for shut-off service as recommended in these hookups. Jenkins All-Iron Valves are also available where desired.

Consultation with meter manufacturers is recommended to determine the type best suited for your particular service.

A CHOICE OF OVER 500 VALVES

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering, select all the valves you need from the Jenkins Catalog. It's your best assurance of *lowest cost in the long run*. Jenkins Bros., 100 Park Ave., New York 17; Jenkins Bros., Ltd., Montreal.

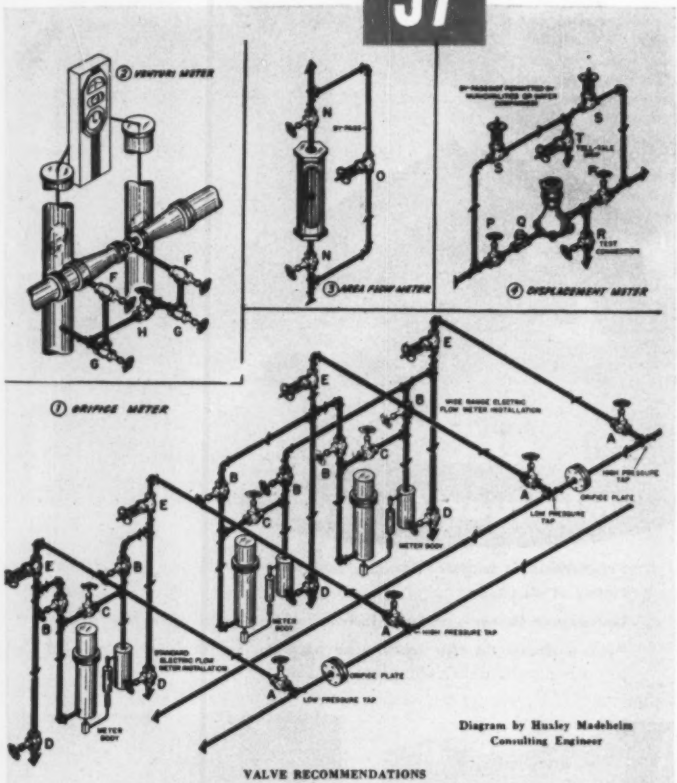


Diagram by Huxley Madeheim
Consulting Engineer

VALVE RECOMMENDATIONS

For details of valves to suit varying conditions see Jenkins Catalog.

	JENKINS VALVES					
	Code	Quan.	Bronze	Stainless		Service
ORIFICE METER	A	4	106-A	1308	Globe	Orifice Tap Shutoff
	B	6	106-A	1308	Globe	Meter Body Shutoff
	C	3	741-G	1308	Globe	Equalizing Line
	D	4	106-A	1308	Globe	Drain & Blow Down
	E	4	47-U	1302	Gate	Main Shutoff or Meter
VENTURI METER	F	2	108-A	1310	Angle	Piezometer Tap Shutoff
	G	2	108-A	1310	Angle	Tap Shutoff to Water Cock
	H	1	741-G	1308	Globe	Equalizer
AREA FLOW METER	N	2	106-A	1308	Globe	Meter Shutoff
	O	1	47-U	1302	Gate	By-Pass
DISPLACEMENT METER	P	2	47-U	1302	Gate	Meter Shutoff
	Q	1	92	1328	Check	Anti Back Flow
	R	1	106-A	1308	Globe	Test Connection
	S	2	47-U	1302	Gate	By-Pass
	T	1	47-U	1302	Gate	Tell Tale Drip

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LOOK FOR THE DIAMOND MARK
VALVES
SINCE 1864
TRADE JENKINS MARK

COMPLETE DESCRIPTION AND ENLARGED DIAGRAM OF THIS LAYOUT FREE ON REQUEST. Includes additional detailed information. Simply ask for Piping Layout No. 57.

Municipal . . .

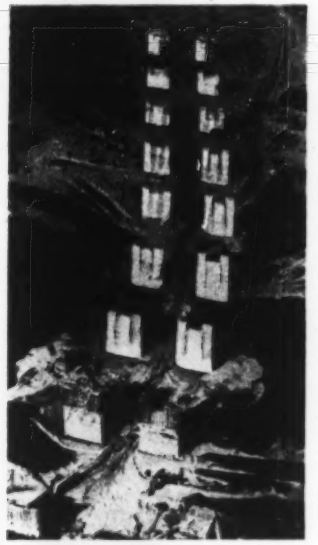
Rain-making contract

A contract with the Weather Modification Corp., Beaumont, Calif., for five months of rain-making operations from the first cloud seeding Nov. 4 has been approved by the Santa Clara County, Calif., Board of Supervisors. Cost to the county will be $26,026.25, of which $2,526.25 is the premium on an insurance policy with Lloyd's of London containing a $500 deductible clause for each storm.

Written into the contract with Weather Modification are clauses allowing stoppage of payment if seeding is halted by injunction and rebates to the county if seeding is terminated before the contract period is up.

Weather Modification Corp. uses aircraft and ground generators to seed silver iodide among rain-bearing clouds.

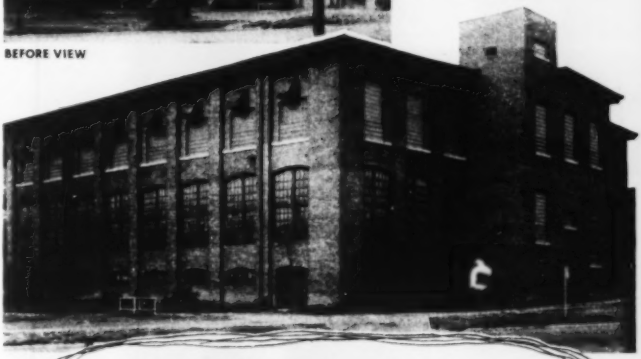
Mixing his metaphors a little, one official of Santa Clara County likened the county, in trying the rainmakers, to a "drowning man grasping at a straw . . . we must try something to get more rainfall here."



FREEWAY LINK—Aerial view showing progress of initial work on Elvas Bridge across American River near Sacramento, Calif. The substructure work is expected to be finished soon. California highway construction budget for 1952-53 carries $2,280,000 to continue work on the project which will provide a freeway link from Sacramento to fast-growing North Sacramento suburban area. Bridge and connecting approaches are expected to be completed in about three years.

BEFORE VIEW

THESE "before" and "after" photographs of the Rosemary Manufacturing Company, Roanoke Rapids, N. C., show how large areas of outworn window sash were replaced with modern PC *Functional* Glass Blocks. Here, they admit abundant, scientifically-directed daylighting. Partial replacement, made possible by PC Glass Blocks, meets budget limitations.



Sash replacement with PC Glass Blocks is adaptable to budgets ... saves you money!

Complete sash replacement can be done at one time, or the program can be extended over long periods, when PC Glass Blocks are utilized. Whether your budget is large or small, that's an important consideration in replacing worn window sash. And PC Glass Blocks offer you real money-savings. They seldom require repairs or replacements. No metal or wood sash is involved, to rust, corrode, rot or decay. There's no periodic and expensive painting and puttying. They cut maintenance costs. And, because they have more than twice the insulating value of ordinary single-glazed windows, heating and air-conditioning costs are reduced. Why not consult with our specialists regarding your particular sash replacement needs? Meanwhile, send for our free booklet.

PC Glass Blocks are immediately available ...no construction delays!

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Dept. AK-121, 307 Fourth Avenue, Pittsburgh 22, Pa.
Without obligation on my part, please send me a FREE copy of your booklet, "The Mark of a Modern Building—PC Glass Blocks."

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Address.....

City.....State.....

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PITTSBURGH 22, PA.

PITTSBURGH PC CORNING GLASS BLOCKS
The mark of a modern building

Distributed by Pittsburgh Plate Glass Company; W. P. Fuller & Co. on the Pacific Coast; Hobbs Glass Ltd. in Canada; and by leading distributors of building materials everywhere.

Let's go...let's get that SCRAP in!

All your SCRAP is urgently needed, NOW

THE scrap shortage is serious. *Your* scrap—every pound of iron and steel scrap you can locate in your plant or factory—is vitally needed and needed right away. For unless you do everything possible to get this scrap on its way to the mills, steel production is bound to slow up. That can't be allowed to happen. But without your help it surely will.

It takes at least one-half ton of scrap to make one ton of steel. With the mills turning out more than 2 million tons of steel per week, over 1400 carloads of industrial scrap are needed *every day*. And industry, somehow, must provide it.

What you can do to meet this emergency

First, organize a permanent Scrap Salvage Committee and make the "drive-for-scrap" part of your daily operations. Search out every possible source of scrap. Turn your old and worn-out equipment, tools and machinery over to your scrap dealer, at once. Dig out your discarded dies, rusted-out tanks and boilers, your old rails and other miscellaneous junk, and start them back to the mills through your scrap dealer. Encourage every employee to report every retired or obsolete machine that now stands idle—see that it is turned in for scrap.

By getting this "dormant" scrap off your premises and into the furnaces you'll be helping not only yourself but America as well. *More* scrap turned in, means *more* steel turned out—it's as simple as that. So let's get going.

You'll find your local scrap dealers listed in the yellow pages of the phone directory.

USS

1-1329

This page would ordinarily be used to tell you about

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but, because without SCRAP we cannot produce steel, we are asking instead for your all-out help in getting more SCRAP to the mills.

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL

Neglected levees along Po River responsible for river flood damage

McGraw-Hill World News

ROME—The recent Po River flood isolated many thousand of persons, took 100 lives, and caused damage of $200,000,000—equal to one-fourth of the whole of Italy's annual budget.

For its last 125 miles the Po crosses a low-lying delta where much of the land is at or below normal river level. Consequently, during the 19th Century, levees were built along the river's banks to protect the land from overflow. They are in bad condition, for they have not been repaired during the last 20 years, and the river has not been dredged to keep its level from rising.

The flood has resulted in seepage through the dikes, and underground infiltrations everywhere. As a result, the dikes protecting the town of Occhiobello in the river bends near the city of Ferrara, gave way. That breach is about 60 miles from the mouth of the river.

The levees at that point were 75 ft above low water and a breach 45 ft deep and 2,100 ft long was cut. As the land back of the levees is far below the river levee it is feared that the river cannot be forced back into its old channel before it cuts a new channel to some point nearer the Adriatic.

• **Canal dikes blown up**—Elsewhere, to reduce the area and depth of flooding, dikes along the canals that cross the delta from the Po to the Canal Bianco have been blown up to facilitate the overland flow of flood water to the sea.

It is estimated that drainage pumps will have to work many months to dry up the flooded area, about 50 miles long and 20 miles wide, to make it habitable again.

Also necessary will be rehabilitation of the many miles of land-reclamation ditches that have been silted up by the flood. About 300,000 acres of land are affected.

• **Large property loss**—It is estimated that 30 percent of the houses in the flooded area have collapsed and that 100,000 refugees must be cared for while homes for them can be rehabilitated or rebuilt. Also lost are 30,000 cattle, 60,000 tons of wheat and 100,000 tons of sugar.

• **Widespread rainfall**—This flood was caused by heavy rains coming at the same time over the valleys of the tributaries on both sides of the Po valley. And the resulting high runoff reached the lower delta region at the time of seasonal high tides in the Adriatic Sea, which checked the outflow and raised the river's crest.

• **Long flood record**—Since 1800 there have been 260 floods in the Po valley and the river breached the levees 160 times. In 1321, about 10,000 people were drowned in Mantua; in 1726 the Po opened a new outlet to the sea; and in 1872, both Mantua and Ferrara were flooded.

The crest of this year's flood was 22 in. above the highest previous record.

Ten years ago a plan to divert flood water from the northern Po valley into Lake Garda through the canalized Mincio River was proposed, but work was not started. This would have relieved the levees from the weakening effect of long submergence.

• **International road conference**—The second Tuesday of May, 1952, has been set as the opening date for the first world conference of the International Road Federation, to be held in Washington, D. C.

First French earth dam

Justly famous for its many concrete dams, France is only now ready to embark on its first major earth dam project. This will be Serre-Poncon Dam on the upper Durance River in the southeastern part of the country, to be built by Electricite de France, the national electricity authority.

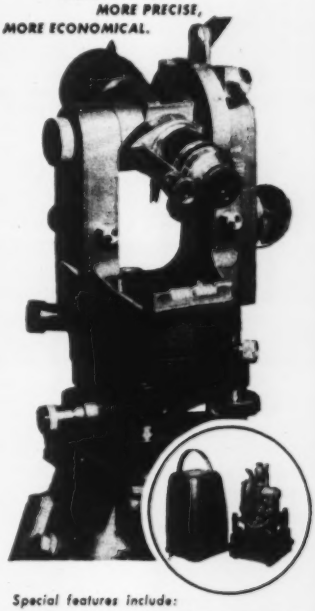
That the chosen site is a good one has been confirmed by two American engineers who have just returned from a consulting assignment on the design and construction plans for the dam. They are T. A. Middlebrooks, chief, soil mechanics, geology and geophysical section, Office of the Chief of Engineers, Washington, and P. T. Bennett, soils engineer in the Army Engineer's division office in Omaha. They confirm the French hopes that a high earth dam is feasible in the river gorge, where topography and geology are ideally suited to an economic layout of tunnels for diversion power conduits and spillway, and where excellent fill materials for a dam are readily available.

Is there any scrap napping on your job?

(Continued on page 60)

The FILOTECNICA
6" OPTICAL
TRANSIT-THEODOLITE

The newest and most modern instrument for surveyors and engineers. Its special innovations combine to make instrument operation
MORE RAPID, MORE PRECISE, MORE ECONOMICAL.



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REPEATING LEVER—speeds repetitions, prevents errors.

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International . . .

W. E. Warne goes to Iran on technical cooperation

William E. Warne has resigned as assistant Interior secretary for water and power development to become director of technical cooperation for Iran.

In his new State Department job, he will have the personal rank of minister, which is considered a step above the assistant secretaryship. He will help to formulate and administer the Point Four program in Iran.

Warne has been one of the chief spokesmen for Interior's power program both before Congress and the public during the last few years. He was in the forefront of the bitter Central Valley Project controversy in California, when Interior was charged with attempting to rule the valley by controlling the main available water resources.

During his 15 years with the department, Warne served four years as Assistant Commissioner of Reclamation and four years as assistant secretary.

New R.R. terminals at Mexico City

At Mexico City a $1,200,000 railroad terminal is now under construction.

It will consist of a group of buildings, including a 14-story administration building and a passenger station with all modern facilities.

A new Valle de Mexico freight terminal is also being built, to separate the passenger and freight terminals. It is located in a new industrial district about 30 miles outside of the city.

It is expected to provide a 24-hour turn-around on frieght cars, thus freeing an estimated 7,000 cars now held up for loading and unloading. It will handle 600 cars a day.

International briefs . . .

• **Norweigian aluminum plant**—Construction will start soon on the largest aluminum plant in Norway—at Sunndalsoera. It will be able to produce 40,000 tons annually. A 10-year contract for oxide has been made with Aluminum Union Ltd. of Canada. It is estimated that production costs will be just over $2.80 a ton.

• **Jordan's economic needs**—The Jordan government has approved in principle reconstruction and economic development projects calling for an expenditure of $42,150,000 in five

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Experienced truck men know *it pays* to buy trucks equipped with Timken-Detroit Axles. These advance-designed axles perform better—stand up longer—cost less to maintain.

It's only good judgment to *keep* this high level of dependability for the entire life of your truck. Whenever Timken-Detroit parts need replacement, make sure your service man installs only Timken-Detroit original equipment parts. It took more than 40 years to perfect today's Timken-Detroit Axles—and nobody else can build *genuine* parts to maintain them.

Look for the truck dealer who displays the Timken-Detroit sign—headquarters for true Timken-Detroit parts, protected and packaged in engineered kits for maintenance work that *lasts longer!*

The Timken-Detroit Axle Company, Detroit 32, Michigan

Install only Genuine TIMKEN-DETROIT AXLE PARTS

MAIL THIS COUPON FOR ILLUSTRATED FOLDER ON TIMKEN-DETROIT AXLE LUBRICATION

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Gentlemen: Please send me free illustrated literature on Timken-Detroit Axle Lubrication.

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At the outbreak of World War II, Timken-Detroit's research and development program—carried on continuously since 1919 in cooperation with Armed Forces personnel—helped to make possible the immediate mass production of modern military vehicles.

Timken-Detroit did not relax with victory. Realizing the high cost of unpreparedness in a national emergency, Timken-Detroit moved ahead with new developments in axles, brakes, transmissions, transfer cases and other components for military vehicles. Today, Timken-Detroit is *out* of the blueprint stage—*producing for peace!*

1951

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A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted SAE Standard

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years. Projects have been prepared by three experts of United Nations agencies. Jordan will borrow money abroad and benefit from the U. S. Point 4 program.

• **Irrigation research in India**—The Central Waterpower Irrigation and Navigation Research Station at Khadakvasla covers 130 acres. The station has succeeded in solving problems caused by the vagaries of alluvial rivers. Experiments carried out include protection against river floods, excessive sand entering canals, training of tidal and not-tidal waters, relation between rainfall and run-off, effect of sand and silt washed into rivers, the rate of silting of reservoirs, and accretion and retrogression in rivers.

• **Canadian defense construction**—Contracts being placed by Defense Construction, Limited, will amount to $440,000,000 in the three fiscal years April, 1951-March, 1954. This provides for radar screen buildings and facilities, airfields, barracks, training facilities and living quarters. Deliveries of reinforcing bars, structural steel and wire mesh, while a problem in individual cases, are not expected to cause serious delays, in this program.

Kuala Lumpur water problem—Edward R. Dexter, civil engineer, and W. H. Irwin, geologist of the Bureau of Reclamation, have gone to Kuala Lumpur, capital of the Federation of Malaya, to help provide a badly-needed new water supply for that area of 230,000 population, whose present supply has a capacity of only 10,250,000 gpd. Construction of a reservoir dam is proposed.

• **French housing**—The French Ministry of Reconstruction has announced that 131,195 new housing units have been built in France since 1945. In addition, 70,990 housing units have been repaired or rebuilt. Both figures cover the period up to June 30, 1951. A ministry spokesman said 20,125 housing units were completed in the second quarter of this year as compared with 16,160 in the first quarter.

• **Mexican subways planned**—The public works section of the government of Mexico City is planning four large subways. Three will be north-south and the other one east-west. The tentative cost estimate is $25,000,000.

• **Bombay power troubles**—Bombay City is suffering the severest power

(Continued on page 64)

THE NIGHT BEFORE CHRISTMAS

by Jolly Saint "VIC"

'Twas the night before Christmas and right down the line
Not a drop was there leaking, even one at a time.
All sections were "locked" and "buttoned-up" tight
With Victaulic Couplings that made 'em just right.

All Elbows and Tees stayed right in their groove
For the Victaulic Method each fitting did prove.
With the world's best system for making ends meet
Each pipe and each fitting was tight in its seat.

Now all of this piping so good and so quick
Was the work of none other than jolly Saint "Vic"
So for better connections in the year '52
You'd better let "Vic" do that piping for you.

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To the construction industry, which uses more than $300,000,000 worth of ready-mixed concrete a year, this rating plate gives indispensable protection against questionable concrete from non-standard truck mixers. Insist on it, when you approve or buy concrete ready-mixed.

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International . . .

cut in its history consequent upon the partial failure of the South-West Monsoon during August and September. The catchment area of the Tata Hydro-Electric system, whose five source dams, generators and power stations lie in the Western Ghats (hills) between Bombay and Poona, has received since June only a fraction of its usual rains. As a result, by decision of the state government, consumption of current has been cut by one-third.

The consumers are left to effect the cut as best they may, but if after the first month their consumption is higher than two-thirds of their previous average, government inspectors will have authority to cut off their supply altogether.

• **Large atom reactor**—From Chalk River, Ont., it is announced that construction of Canada's third, and by far the largest, atomic reactor will start shortly. Officials said it probably will be 1954 before the huge nuclear furnace is in operation. Ten months ago, it was predicted that it will cost $30,000,000, virtually equal to all the capital the government has poured into the project in the last seven years. (ENR Nov. 24 '49 p. 140).

• **Conference on soil mechanics**—The Third International Conference on Soil Mechanics and Foundation Engineering is to be held in Zurich, Switzerland, in 1953. Tentative date is Aug. 16-26. Preliminary details may be obtained from A. E. Cummings, chairman of the U. S. National Council on Soil Mechanics and Foundation Engineering, Room 1308, 140 Cedar St., New York 6, N. Y.

• **Siamese 5-year roads plan**—The government of Thailand has a 5-year plan for highways to cost about $51,000,000.

If adopted the program will expand the highway system to 5,667 miles by the end of 1955.

• **Mexico welcomes foreign engineers**—Foreign civil engineers in Mexico and those abroad who desire to practice in Mexico will be interested in the recent Mexican Supreme Court ruling that any foreigner practicing or desiring to practice any profession in that country enjoys the full constitutional right to do so, and in order to practice all he must do is to register with the government's General Direction of Professions.

More scrap today makes more steel tomorrow

For maximum economy in non-pressure sewer lines . . .

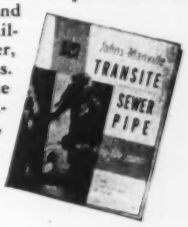
Specify TRANSITE SEWER PIPE with new RING-TITE JOINTS

Whether you plan to extend existing sewer lines, or build a complete new system, you'll want to check into the money-saving possibilities offered by Transite Sewer Pipe with its new Ring-Tite Couplings.

Without the need for hot jointing compounds, this factory-made coupling is quickly and easily assembled to make a tight joint that stays tight in service. This, plus the fact that Transite's long 13-foot lengths mean fewer joints in the line, cuts infiltration to a minimum. Thus, the load on the disposal plant is cut down, treatment costs reduced, and plant capacity conserved for future needs. And, in the planning of new systems, smaller treatment plants and smaller diameter sewers may be considered . . . with resultant savings in money, time and labor!

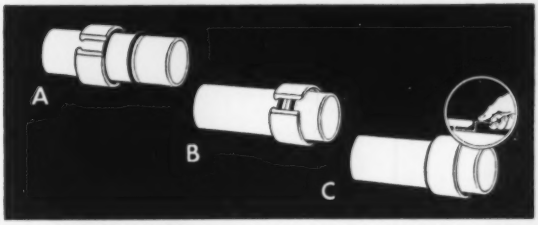
Important installation savings are possible, too, with Transite Sewer Pipe. Its relatively light-weight, long 13-foot lengths, and easy-to-assemble Ring-Tite Couplings speed completion of the line. It can be readily cut on the job for closures and branch connections. And its high flow capacity (Manning's n=.010) often permits flatter grades and shallower trenches with savings in excavation, sheeting, etc.

Transite Sewer Pipe is made of asbestos, cement and silica by a special Johns-Manville process which develops maximum strength and corrosion-resistance. It is available in sizes to 36" in diameter, for non-pressure sewer lines. For further information, write for your copy of folder TR-103A. Address Johns-Manville, Box 290, New York 16, N. Y.



Transite is a registered Johns-Manville trade mark

HERE'S HOW THE RING-TITE JOINT WORKS:



(a) Start of assembly. Two rubber rings and a Transite sleeve (cut away to show position of rings) are placed on one of the two pipe ends to be joined; (b) Final position. Sleeve centered over both pipe ends, with the rubber rings tightly compressed between sleeve and pipe; (c) Checking joint for proper assembly. This is done with a simple gauge immediately after the joint is made . . . *before backfilling.*

JOHNS MANVILLE JM PRODUCTS

Johns-Manville TRANSITE SEWER PIPE

Pictures from Industry

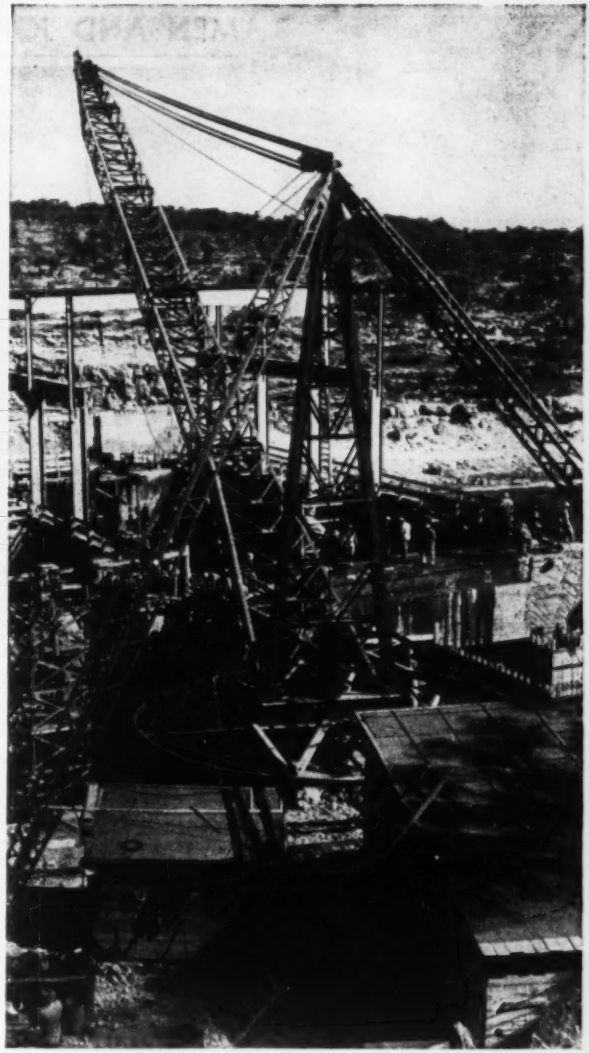
These are excerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon on right hand page, to start with the current issue.

Trigger finger saves aching back. Just by pulling a trigger, men working for roofing contractor Elmer Bauermister now hoist tar, gravel and other materials up to the job. This neat, light rig is an American Handiwinch, mounted on special frame and powered by a portable electric Skil Drill. With minimum investment, it provides fast, easy, labor-saving hoisting for hundreds of different needs. Handiwinch can be moved, set up and operated almost anywhere by one man.

Firemen, save that school! Flaming hot tar, spreading on the roof, brought smoke-eaters on the double, to this new School of Mines building at University of South Dakota. Firemen hopped aboard the contractor's American Portable Material Elevator, rode to roof, quenched flames quickly. Where builders once used clumsy, costly wooden hoisting towers, portable steel Americans now permit fast moves, save enormous expense.

The AMERICAN HOIST line includes: Hoists • Derricks • Locomotive Cranes • Crawler Cranes • Revolver Cranes • Portable Material Elevators

Tying down a river. When the raging Pend Oreille River swept away a new bridge and pile driver, Donovan-James Construction Co. of Seattle decided to lick the currents once and for all. Here, riggers are anchoring the 2½-inch main gut of a highline spanning the river to carry concrete for new Albeni Falls Dam. Tightening nuts on the 2½" drop forged Crosby Clips, these men will bet their lives this connection will *hold*. Wherever wire rope is used, safety-minded men use Crosby Clips. Recent survey among construction equipment distributors showed a 7-to-1 preference for genuine Crosby Clips; and sales greater than *all other wire rope fasteners combined*.



Identical twin at Marble Falls. Almost a nation apart, two identical American Stiffleg Derricks are working on major dam projects. Both have the design shown here — a 185-ft. crane type boom, spread mast, and 30-ft. bullwheel. This one at Marble Falls Dam in Texas, has handled loads up to 35 tons. Its twin is at work at the Detroit Dam, near Salem, Oregon.

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Salt, Sand and Steam

Located 150 yards from the ocean, the Southern California Edison Company's Redondo Steam Plant had a difficult air filtration problem. The blowers were located in the wall facing the ocean and the wall openings were covered by concrete hoods facing toward the ground. The corrosive salt air contained a large concentration of dust and sand, and it was necessary to handle a large volume of air—240,000 CFM—even though the design of the hoods made filter space limited.

An installation of corrosion resistant FAR-AIR* filters, Type C4C4H was made in the form of a V bank. The installation effectively removed dust and sand while operating at the unusually high velocity of 625 FPM. FAR-AIR filters so satisfactorily solved this complex air handling problem that they have been used by this customer in several other installations.

Whether your air problem involves the elimination of dirt, grease, ink, paint, lint or almost any other air-borne particle, you will find the type and size filter to meet your requirements among the many in the FAR-AIR line. Also, special filters for special applications. For complete information write to Farr Company, P.O. Box 10187, Airport Station, Los Angeles 45, California.

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FARR COMPANY

Manufacturing Engineers

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MEN AND JOBS

TESTING TAINTER GATES—On the recent anniversary of the devastating San Angelo, Tex., flood of 1936, the San Angelo Dam was dedicated. Pictured here while testing the tainter gates are San Angelo's Mayor Armistead Rust; Col. Delbert B. Freeman, Fort Worth district engineer, Corps of Engineers; former San Angelo Mayor W. D. Holcombe; U. S. Representative O. C. Fisher and Col. Louis W. Prentiss, Southwestern division engineer, Corps of Engineers. The 7-mile long embankment, the outlet works and relocations have been completed.

New Appointments

Highway departments

Geo. M. Foster, Michigan highway department bridge engineer, is the new chief deputy highway commissioner.

Paul R. Staffeld is engineer in charge of the Minnesota highway planning survey department.

E. J. McCubrey is Twin Cities district engineer of the Minnesota highways. **E. J. Rowland** and **Frank B. Christlieb** are engineer and assistant engineer, respectively, in the Lands and Rights-of-way departments.

Wm. C. Zwick is now assistant state bridge engineer of Oklahoma highways.

State, city and county

After serving ten years as mayor at McArthur, Ohio, **John Crow** has resigned to be city street commissioner.

R. B. Thomas is chief engineer of the Illinois Commercial Commission.

George **Chrissakis** has been appointed city engineer for Vasalia, Calif., succeeding **A. J. Snell.**

John Andrews, former superintendent and chemist of the water purification plant at Raleigh, N. C., is principal engineer of the Sanitary Engineering Division of the North Carolina State Board of Health, succeeding **E. C. Hubbard**, resigned to be executive director of the North Carolina State Stream Sanitation Committee.

Cy Butler is consulting engineer for water resources of the North Carolina Department of Conservation and Development, Raleigh, N. C., and will work with public agencies concerned with river basin development. He is a graduate of the N. C. State College School of Engineering.

G. W. Folke is a sanitary engineer for the Pennsylvania dept. of health.

Hugh M. Sheridan, former engineer for the Bureau of Public Roads and the Kansas State Highway Commission, has been named city engineer of Lawrence, Kan., replacing **J. C. Harper**, resigned.

John S. Flockhart, former head of the Bureau of Sanitation, **Newark**, N. J., is now city engineer.

Eleuthere I. duPont has been appointed by Mayor James F. Hearn, of Wilmington, Del., to fill the unexpired term of the late Stanley B. Hearn of the Wilmington, Del., Board of Water Commissioners.

Geo. R. Elliott has been chosen engineer of Buchanan County, Iowa.

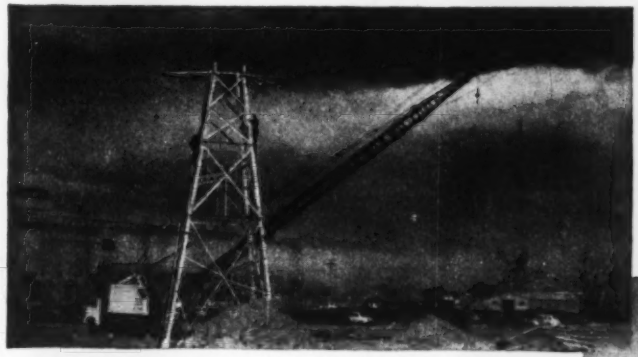
Albert C. Hufford, C. L. Coleman and **William Burns** are members of the administrative staff of the engineering division of the Lancaster Co., Pa., civil defense organization.

Industrial and commercial

Thomas K. Brietfuss, civil engineer, has joined the American Concrete Pipe Association, Chicago, as assistant to **Howard F. Peckworth**, managing director.

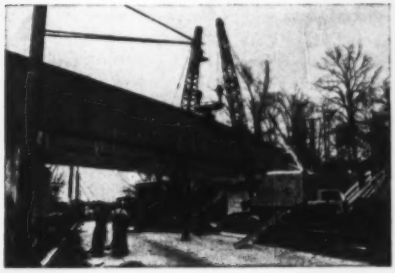
(Continued on page 71)

You can take on any kind of lifting job with a BAY CITY CRANEMOBILE



for high lifts . . . There is plenty of balance and stability in this 20 ton capacity CraneMobile to handle long booms and jibs. Here a "180" is reaching out to pick up a prefabricated top section of a 90 foot transmission tower. The worm and worm wheel boom hoist will raise and lower boom and load *only under power* either independently of or simultaneously with other operations.

for heavy lifts . . . POWER and WEIGHT are always necessary to pick heavy loads. The BAY CITY CraneMobile has them both as shown here where the 25 ton capacity "190" lifts a massive rotary dryer. When lowering, the operator will engage the power load lowering device which permits precision controlled lowering against machinery and engine.



for twin lifts . . . Frequently an exceptionally heavy load requires cranes to operate as a team, as in this illustration where two 20 ton capacity CraneMobiles, working on a new railroad underpass, handle two girders each weighing 37½ tons. This job calls for *precision booming* and *precision load lowering*—BAY CITY furnishes both. For complete CraneMobile facts write us today. BAY CITY SHOVELS, INC. BAY CITY, MICHIGAN.

CHECK LIST
- 20-25 Ton Capacity
- Pin-Connected Boom
- Hi-Collapsible Gantry
- Independent Power Boom Hoist
- Precision Power Load Lowering
- Removable Counterweight
- Specially Designed Carrier
- High Road Speeds

power load lowering . . . A specially arranged Power Load Lowering mechanism for accurate control in lowering heavy loads is standard equipment on CraneMobiles. This device, independent of the boom hoist, automatically lowers the load at about one inch per second on six parts of line without use of brakes. The mechanism can be quickly engaged or disengaged.

189

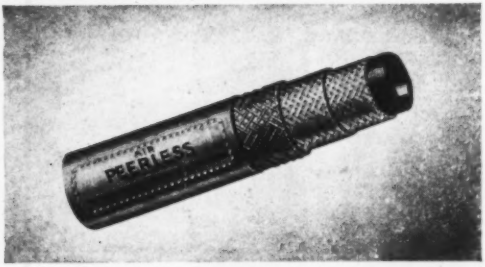
BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

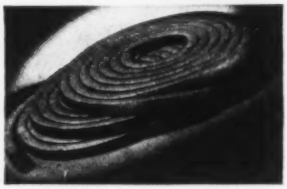
What's U. S. Rubber doing to save you precious time?

CONTRACTORS PREFER "U.S." Suction and Discharge Hose because it is so flexible and strong, yet lighter in weight than the ordinary hose. It can readily be rounded out, if crushed or flattened.

Contractors today, on big jobs or small, all over the nation depend on "U.S." products to speed up their work, and cut down operating costs. Each of these products is engineered for the particular job, depending on the service requirements. They are located in convenient branch stocks throughout the country for quick supply and delivery. Each product has been developed and perfected by "U.S." experts in construction work, men who have at their disposal the finest laboratories and immense research facilities. You may place the utmost confidence in "U. S." products for the construction industry.



U. S. PEERLESS Air Hose has oil-resistant synthetic rubber lining, and a tough, flexible, rubber compound cover with a resilient surface workman like to handle. Withstands both hot or cold oil in the air line.



U.S. WIZARD Square Braided Asbestos Packing is specially designed for reciprocating rods and plungers, valve stems, and centrifugal pumps handling steam, air, ammonia, oil, hot and cold water, chemicals and some acids. Provides the proper density and minimizes friction and wear of rods and shafts.

PRODUCTS OF U.S. RUBBER SERVING THROUGH SCIENCE

U N I T E D S T A T E S R U B B E R C O M P A N Y

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Men and Jobs . . .

L. A. Chamblee is superintendent of construction for the H. L. Coble Construction Co. of Greensboro, N. C., on the construction of a million-dollar nurses' home for Duke Hospital at Durham, N. C.

George F. Tongue, maintenance and construction superintendent of the Dallas Railway & Terminal Co., Dallas, Tex., has been made chief engineer. He holds a civil engineering degree from Oklahoma A. and M. College.

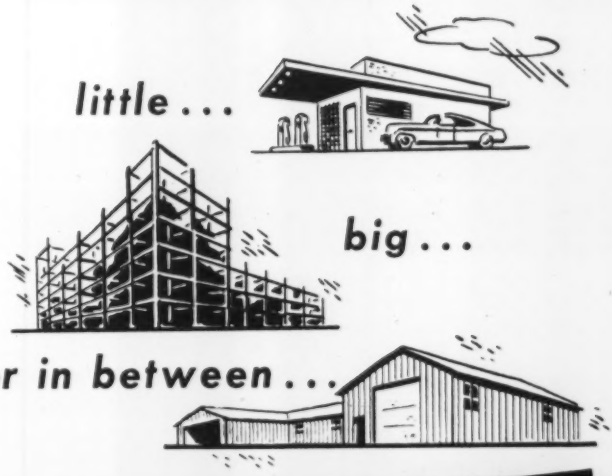
Charles E. Dahlenburg has been named by the DuPont Company, Wilmington, Del., to the newly-created post of departmental engineer. He will have charge of all engineering and construction for the department, methods and standards work, and engineering activities directed toward the development of new techniques and materials.

L. H. Simon, construction engineer at Los Angeles for the Santa Fe Railway, has been named construction engineer for the railway's entire system, succeeding **J. W. Cook,** retired after 42 years. Simon will make his headquarters at Topeka, Kan. **R. B. Wheeler,** construction engineer at Amarillo, Tex., will succeed Simon at Los Angeles.

Joseph M. Cunningham is now manager of operations for the British Columbia Bridge & Dredging Co. Ltd. at Vancouver.

(*Continued on page 72*)

KEY MEMBER—of the Austin Co.'s engineering staff since 1920 and its district engineer at Chicago since 1945, A. D. Engle has been appointed assistant vice-president for research, with headquarters at Cleveland. He is a U. S. Naval Academy graduate.



International Steel's know-how has helped with every size steel structure

Installations the land over are testimony to the ability of International Steel to be of real help with the planning and erection of steel structures — regardless of size.

From multi-storied office buildings — through spacious hangars to house giant aircraft — down to small steel buildings for storing farm equipment, International has, time and again, been of help in planning as well as in fabricating steel for these buildings.

In these days, International still welcomes the opportunity to sit in on the preliminary planning stages of any type of steel construction. Such opportunities for counselling have often resulted in savings . . . in earlier delivery . . . or both, for customer after customer.

If you have a steel building problem International invites your inquiry.

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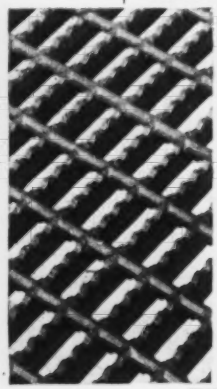
SLIP-PROOF in All Types of weather

GARY SERRATED GRATING



Here is another GARY Specialized Welded Grating type that is especially adaptable for area gratings in sidewalks. Other uses for this durable and neat appearing grating are places where good traction is an important consideration and for inclined walkways.

Gary Serrated Grating is available in all types of Gary welded Grating in either GW or SGW series with cross bars spaced on 2" or 4" centers.

Send for illustrated Booklet No. 14-p-21

This booklet pictures and describes the complete line of GARY GRATINGS. Included is two pages of engineering data. Two pages are devoted to our Fastening Devices for Anchoring Grating to supports. Our 5 types are illustrated and diagrammatic drawings are shown.

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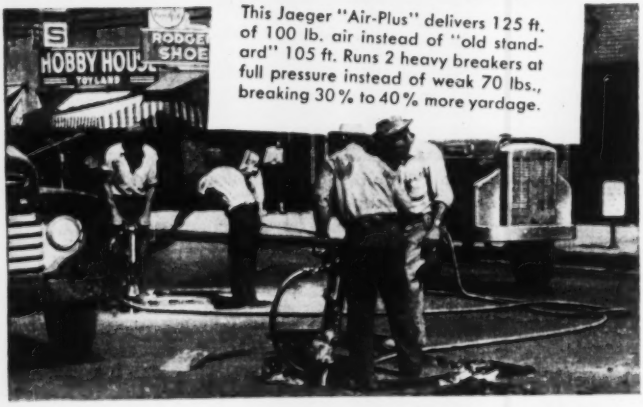
You Can Do 4 Days' Work in 3 with "New Standard" Jaeger Compressors



This Jaeger "Air-Plus" delivers 125 ft. of 100 lb. air instead of "old standard" 105 ft. Runs 2 heavy breakers at full pressure instead of weak 70 lbs., breaking 30% to 40% more yardage.

75 ft.
125 ft.
185 ft.
250 ft.
365 ft.
600 ft.

30% to 40% increases in production are yours with any "new standard" Jaeger from Model 75 that holds full pressure in a heavy pavement breaker up to Model 600 that runs 2 heavy wagon drills at full pressure with air to spare for hand-held drills. Jaeger Compressors deliver this 15% to 25% extra air at lowest cost per cubic foot of air of any compressor.

See your Jaeger distributor or write for Catalog JC-1.

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PUMPS • MIXERS • HOISTS • TRUCK MIXERS • PAVING SPREADERS and FINISHERS

Men and Jobs . . .

Resignations

George Egan, engineer of design, Nevada State Highway Department, has resigned to become a staff member with the Western Highway Institute.

Charles J. Phillips has resigned as city engineer at McCleary, Wash.

Thorpe B. Goreham, Des Moines, Iowa, city plan and zone engineer, has resigned. After 16 years. He began work for the city in 1924 as a draftsman in the municipal engineering department.

Robert Wallace, Buchanan County, Iowa, engineer has resigned to go with the Martin-Roasna Tractor & Equipment Co., Cedar Rapids. He has been county engineer since 1941.

Ross J. Buck has resigned as city engineer of Bloomington, Ind.

Retirements

Robert MacLeod, chief of the bureau of audits, has retired from the Illinois State highway division after 37 years.

Byram W. Steele has retired as a special assistant for civil works in the office of the Army's Chief of Engineers. He served with the Corps of Engineers for more than 14 years and with the Bureau of Reclamation, Department of the Interior, for 16 years.

J. W. Cook, construction engineer for the Santa Fe R. R. system, has retired after 42 years.

Honors

Merle W. Seguire, 28, Bureau of Reclamation construction worker at Loveland, Colo., has been awarded the Department of the Interior Distinguished Service award for heroism in rescue work during the Big Thompson River flood last August. At the risk of his life, he conducted rescue operations when a dam holding a large reservoir broke. For almost 34 hours he searched for victims. He volunteered for the rescue work after his regular day's work was over and his performance of heroic deeds involving personal risk over and beyond the call of duty is deserving of the highest commendation, Acting Reclamation Commissioner Goodrich W. Lineweaver said.

Joseph Augustin LePrince, sanitary engineer, has been honored by the National Malaria Society, which presented to him its first Joseph Augustin LePrince Award, established in his honor to recognize "Outstanding Accomplishment in Malaria Control." Mr. Le Prince, is 76 and lives in Memphis, Tenn.

Crawford Gorgas in virtually freeing the Canal Zone of mosquitoes and thus making possible the building of the Panama Canal.

EUROPEAN PRACTICE — John J. Gould, San Francisco consulting structural engineer, reported on developments in European engineering practices as observed during a study tour he made this summer. Report was made before the Yosemite National Park convention of the Structural Engineers Association of California.

MAINTENANCE ENGINEER—Howard H. Harris has been promoted to maintenance engineer of the Virginia Department of Highways. He has been with the department since 1935, following his graduation from Virginia Polytechnic Institute.

CONVENTIONING—Arthur W. Anderson, left, president of the Structural Engineers Association of California, and Frank B. Durkee, California public works director, study the program between sessions of the recent Yosemite National Park convention of the association which Mr. Anderson heads.

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Wrap the work and worries of your construction program into one package and entrust it to Merritt-Chapman & Scott for safe delivery.
Whatever your project—chemical plant or paper mill, bridge or tunnel—we have the specialist personnel to fit the need... men schooled by experience to work as a team in whipping the toughest jobs... men to whom you can turn over your problems with complete confidence.
It is men such as these who have built our record of turn-key jobs completed time and again before schedule... men we can put to work for you.
Our men can make your life easier!
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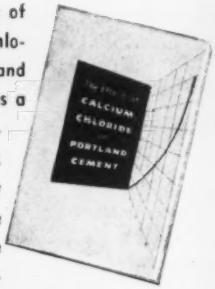
How Does Calcium Chloride *Improve* COLD WEATHER CONCRETE?



"The Effect of Calcium Chloride on Portland Cement" is a semi-technical book that clearly presents the facts on the use of Calcium Chloride. It is filled with graphs, tables, charts and contains much material not heretofore available. This information will be of great interest to contractors, architects, engineers, plant operators and men in allied fields. For your copy, write on your company letterhead to the address below . . . there is no obligation.

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- SPEEDS STRENGTH
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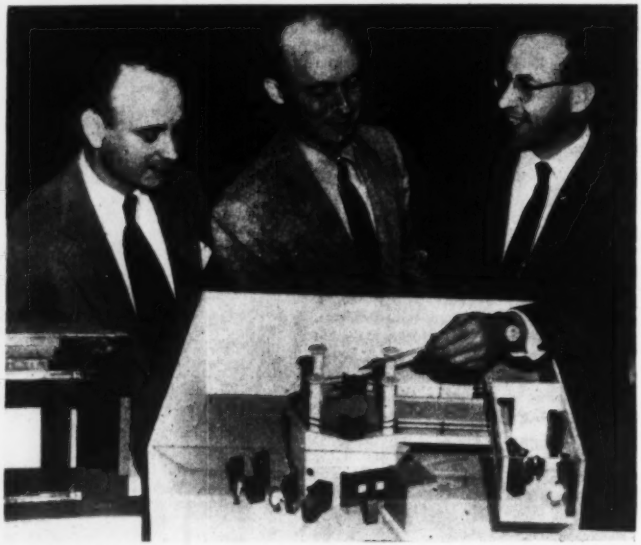
EDUCATION, RESEARCH



BUILDING FOR ATOMS—Housed in a room with 4,000 sq ft of floor space, octagonal atomic reactor can be built by institutions for $1,000,000 according to its designer, Chauncy Starr, right who points at a model.—Wide World photo.

Small reactor design for institutions

Atomic tools for research in many lines (in civil engineering permeability of concrete might be an example) can be produced locally at relatively small cost by a newly-designed reactor. Estimated to cost about $1,000,000, the reactor has been developed by North American Aviation Co., Los Angeles, under a contract with the Atomic Energy Commission. The project is not connected with the firm's aircraft manufacturing activities.

The contract called for a workable design, but it is said that the principal working parts have been built and tested.

The design will be made available through the Atomic Energy Commission to any institution or organization that wants to build one of the reactors. One could be built, according to North American, in 17 months after completion of component development and engineering tests, now scheduled for mid-1952.

The reactor unit is 11 ft high—a concrete-walled chamber containing mixed graphite, and radioactive uranium. A single charge can provide 160 kw continuously for 2½ years. Materials to be made radioactive will be inserted in the "furnace," or held outside for exposure to a spotlight neutron barrage from within.

This reactor, considered to be of "medium" size, is one hundredth the size of the Oak Ridge, Tenn., apparatus for similar purposes.

Chas. W. MacGregor named vice-president, Univ. of Pa.

Charles W. MacGregor, professor of applied mechanics and head of the materials division at Massachusetts Institute of Technology, has been named vice-president of the University of Pennsylvania in charge of engineering and scientific studies, President Harold E. Stassen has announced.

Dr. MacGregor will have jurisdiction over the engineering and scientific departments of the university. His administration will also include the Towne Scientific School. He will begin his work next February.

He holds the degrees of master in mechanical engineering and doctor of philosophy in mechanical engineering and mathematics from the University of Pittsburgh.

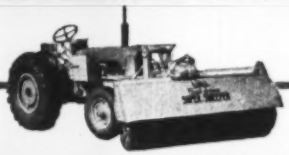
Before he became associated with M. I. T. in 1934, he was research engineer to the applied mechanics division of the Westinghouse Electric Co. laboratories, and also worked for

(Continued on page 77)

Operators know . . .
there's no "quitting time" for a

LULL Shoveloader

All Lull Shoveloaders are powered with the LULL Precision-Built Hydraulic PUMP. The already famous LULL Precision-Built PUMP maintains a pressure of 1000 lbs. per sq. in. indefinitely without pressure or volume loss. The foaming, overheating, or backlashing of oil is practically eliminated in all LULL PUMPS.



SWEEP MORE IN LESS TIME with a Fully Automatic LULL Fluid-Driven SUPER SWEEPER

Now the operator of a Lull Super Sweeper never leaves his seat. Lull Power Hydraulic Controls at his finger-tips start or stop broom, regulate the speed of rotation, raise or lower broom . . . or set broom at any angle from 35° left to 35° right in a matter of seconds, independent of tractor motion. Lull Super Sweeper is the ideal for airports, streets, industrial plants, universities or institutions, parking lots or strip mining.

LULL STANDARD SWEEPERS with manual height and angle control available at low prices.

Hour after hour . . . month after month . . . rugged strong Lull Shoveloaders are digging . . . lifting . . . loading . . . transporting . . . scraping . . . and bulldozing faster and better . . . and at LOWER COST!

Operators have learned from long experience to depend on sturdy Shoveloader construction for continuous round the clock performance.

Value-packed with exclusive features, the Lull Shoveloader handles more jobs and costs less to own. Eight models to choose from with a wide variety of interchangeable attachments. Send in the coupon today and get the facts on the Shoveloader built to do your job.

MAIL COUPON TODAY for complete details.

LULL Manufacturing Company
3612 East 44th Street, Minneapolis 6, Minn.
Please send illustrated literature on:

☐ THE LULL SHOVELOADER
☐ THE LULL SUPER SWEEPER
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Title.....

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Address..... State.....

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LULL Manufacturing Company
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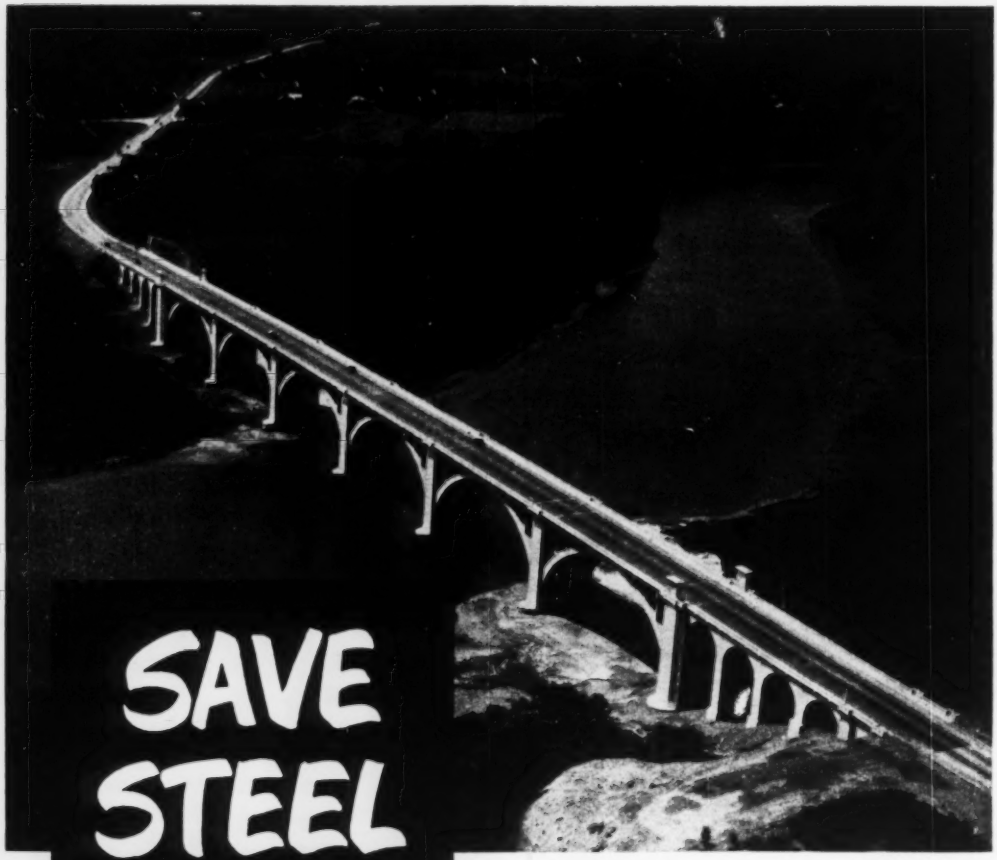
Designers and Builders of The Largest Line of Allied Equipment for Industrial Wheel Type Tractors

SHOVELOADERS • UNIVERSAL LOADERS • FLUID-DRIVEN SWEEPERS • LULLDOZERS • SHOULDER MAINTAINERS



...build with REINFORCED CONCRETE

In these days of material shortages, every pound of steel must be used where it will do the most good. That's why highway engineers all over the country are choosing reinforced concrete for bridges and overpasses . . . it helps them *stretch* their steel allotments. Reinforced concrete has many other advantages. It is a flexible medium which allows imaginative and beautiful design. It is economical. And, it is durable — highly resistant to wind, shock, and quakes. On your next bridge, design for reinforced concrete!

CONCRETE REINFORCING STEEL INSTITUTE • 38 South Dearborn Street, Chicago 3, Illinois

Education, research . . .

the government in the Bureau of Reclamation in Denver, Colo. In 1941 the Franklin Institute awarded him the Louis E. Levy Gold Medal, and the American Society for Testing Materials awarded him the Charles B. Dudley Gold Medal. Four years later he received the Certificate of Merit of the Office of Scientific Research and Development.

Prestressed concrete research at Stevens

Tests on prestressed concrete will be continued at Stevens Institute of Technology by students working for the Mahler Award, established last year to stimulate interest in the testing of materials, President Jess H. Davis announces. The award, consisting of membership in the American Society for Testing Materials for up to five students, is offered annually by Martin Mahler, consulting engineer.

Mr. Mahler, a member of the American Society for Testing Materials and other technical societies, is the instigator of a movement to formulate and adopt an international standard notation, code and specification for prestressed concrete work.

The award is made on the basis of the best special investigation in the field carried out during the student's senior year.

N. Y. State wants engineers—New York State needs several hundred engineers to assist in Thruway and highway construction. The Department of Public Works urges students who are to receive degrees in engineering in June, 1952, to take an examination on Jan. 12 that may open the door to a career in highway construction in the Empire State. Applications for the examination for professional and technical assistant must be received by the New York State Civil Service Commission not later than Dec. 10. The Civil Service Commission is planning to conduct the examinations for this entering grade for engineers in the colleges from which students will graduate in June. Applicants must be citizens of the United States.

Faculty News

L. G. Rich has been promoted to associate professor of civil engineering at the Virginia Polytechnic Institute and is now in charge of the Sanitary Division. He received the degree of PhD in biochemistry in June, 1951.

Is the steel you need loafing on your scrap pile?

No other Instrument gives you

SO MUCH PROTECTION!

NOTICE the leveling screws on the instrument leveling head above. See how they are always totally enclosed — regardless of their position "in" or "out". This means all dust and dirt are sealed out — their precision sealed in.

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Yes, for instruments that guarantee you the extra in precision and long life you want — it's David White . . . makers of finest quality instruments for over 40 years. For detailed information about the complete David White line of Transits, Universal Level Transits, Levels, Theodolites and engineering supplies, write today for Catalog No. 1048.

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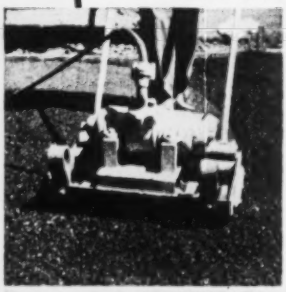
FOR *FAST*, EFFICIENT COMPACTION of ASPHALT *(HOT OR COLD)*

IN HIGHWAY PAVING and WIDENING . . . WALKS and DRIVES . . . WATER-BOUND MACADAM BASES . . . RAILWAY PLATFORMS and STREET CROSSINGS.
Also GRANULAR SOIL COMPACTION of SUB-BASES, in TRENCHES, etc.

The JACKSON VIBRATORY COMPACTOR

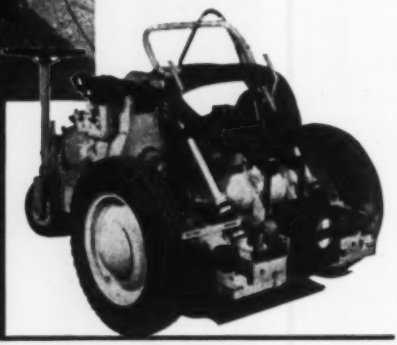
offers tremendous opportunities for saving time and money, and the job it does is unsurpassed by equipment costing many times its price.

IT DELIVERS UP TO 4500 1¾ TON BLOWS PER MINUTE . . . PROPELS ITSELF UP TO 25 FEET PER MINUTE . . . FIRMLY COMPACTS 900 to 1200 SQ. FT. PER HOUR CLOSELY APPROACHING THEORETICAL DENSITY OF ASPHALTIC MATERIAL BEING USED . . . IN GRANULAR SOILS QUICKLY ACHIEVES 95% OF MAXIMUM DENSITY.



It's rugged and reliable. Has just one moving part — the shaft of the heavy-duty motor. Operates on 110 V. 3-phase, 60 cycle AC from Jackson Power Plant mounted on trailer, which generates both single and 3-phase current and may be also used to operate other tools and lights. Capacity: 2.5 KVA.

Trailer has hydraulic jack for quickly lifting and lowering compactor and is a great time saver on many types of jobs. Easily attached or detached from auto by one man. See your Jackson distributor or write for complete description.



JACKSON VIBRATORS
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OBITUARY

Ray F. Smock dies, Pa. Sec'y of Highways

Ray F. Smock, 63, Pennsylvania Secretary of Highways for five years died Nov. 20 at Blairtown, Pa., at ceremonies marking the opening of the new multi-lane section of the William Penn Highway between Blairsville and Alexandria. Mr. Smock had spoken at the dinner celebrating the event.

In 1912 Mr. Smock and a partner formed the Keystone Construction Co., with which he was associated for 21 years.

Kenneth H. Perry, 41, an engineer with the U. S. Bureau of Public Roads, died Nov. 16 in Albany, N. Y. He was graduated from Worcester Polytechnic Institute in 1931. He served with the Bureau of Public Roads in Maine for 14 years and two years with the Albany Division.

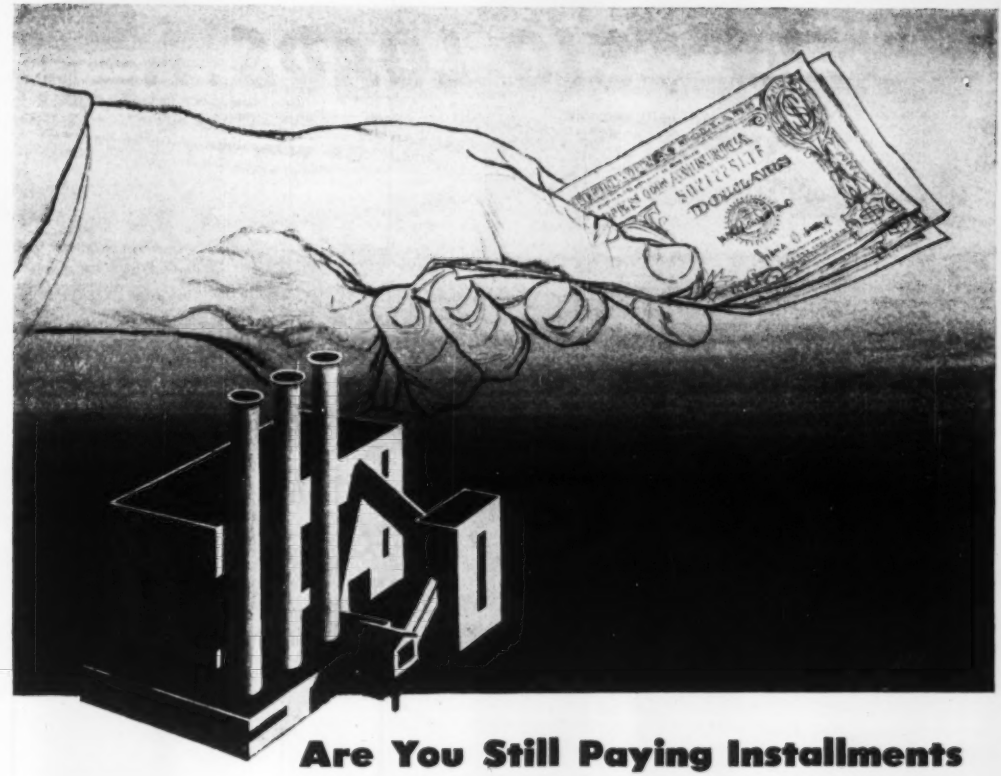
Louis R. Palatine, 55, treasurer of the Eastern Construction Company of Trenton, N. J., died Nov. 18. He was one of the founders of the company, which had built more than a score of large industrial plants along the Eastern seaboard.

Charles E. Gordon Wikoff, 55, senior engineer in the Los Angeles City Bureau of Engineering, inspection department, died Nov. 9. He had been a member of the bureau staff for 30 years.

Donald M. Hill, 53, resident engineer for the Washington state highway department on a bridge project at Kelso, Wash., died Nov. 12.

John Preston Halstead, 65, construction engineer, died Nov. 16 in Buffalo, N. Y. He was graduated in engineering from Cornell University in

(*Continued on page 81*)



Are You Still Paying Installments On Equipment You Already Own?

When you've got the receipt, equipment's supposed to be yours. Yet many operators go right on paying "installments" . . . in heavy maintenance, high operating costs, production lags.

This sounds like the granddaddy of all blind alleys. Yet consider what *one* power station did:

Faced with "rat-holing" and high maintenance costs, this company solved *its* problem with a 1400-ton bunker, using monel-clad steel for the bottom six feet of the four bunker noses. This solved corrosion and abrasion threats, assured surface smoothness, ended packing of moist fines that lead to "arching" and "rat-holing".

RESULTS: steady feed, without vibrators or a stand-by man . . . smoother flow to direct-firing pulverizers . . . lower operating costs.

What makes this story significant is that it resulted from a progressive planning method followed by certain Equipment Builders.

This method coordinates the knowledge of leading engineers, designers, and materials suppliers. Each factor affecting performance is *thought out by a specialist in that field.* In such planning, you'll find these builders turning to Lukens for its knowledge of materials, as well as its wide range of low cost clad steels.

Even with new equipment hard to get, we know builders who often can help you get more profitable performance from what you have. For their names, write us today, explaining your need. Manager, Marketing Service, 513 Lukens Building, Coatesville, Pennsylvania.

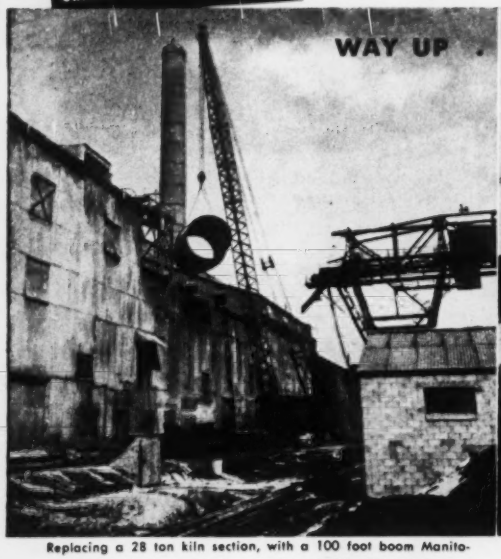
LUKENS

LUKENS STEEL COMPANY

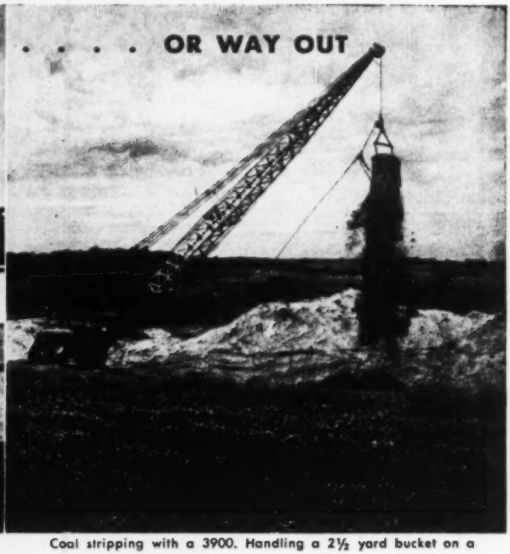
WORLD'S LEADING PRODUCER OF SPECIALTY STEEL PLATE · PLATE SHAPES · HEADS · CLAD STEELS

MANITOWOC
MODEL 3900
CRANE • CLAM • DRAGLINE

BIG LOADS...



Replacing a 28 ton kiln section, with a 100 foot boom Manitowoc 3900. Torque converter assures smooth, fast placement.



Coal stripping with a 3900. Handling a 2½ yard bucket on a 100 foot boom. Big capacity — big reach.

BIG LOADS

60 tons at 12' — or 30 tons at 30' means plenty of capacity for the big loads. When equipped with a torque converter you can "inch" your biggest loads into position with pin point accuracy.

WAY UP

Out on jobs there are Manitowoc 3900's with 140' booms, with jibs up to 20 feet extra — enables you to set steel, place concrete, for 13 to 14 story buildings, with complete safety.

WAY OUT

Specially designed for long boom work. Look at this capacity: 20,000 lbs. with a 100' boom at 60' — even with a 100' radius you handle 9500 pounds. As a dragline you can move dirt as far as 150' — handle 2½ yd. bucket on a 100' boom. That's reach — that pays off in work capacity.

More Capacity

than any machine in its class!

Out on the job, where you can PROVE performance, the Manitowoc 3900 has set amazing new standards. You get rated capacity of 60 tons at 12 feet BUT farther out is where this husky unit pays off. Exceptional stability provides a bonus as much as 8½ to 18 tons greater than other machines of its rating and price class.

The reason is found in its long (20'-4") wide (16'-8") crawler base which supplies extra stability and low ground pressure. The counter-weight, an integral part of the revolving frame, is placed well back and low, carried directly by the boom support straps.

And when you consider such features as the torque converter; easy shipment on flat cars or trailers; simplicity of design; high operating speeds, you've got a machine that will outperform *any* other on *any* job. MANITOWOC ENGINEERING WORKS, MANITOWOC, WISCONSIN.

MANITOWOC
SHOVELS 1-5 YD.
Steel Crane
CRANES 18-100 TON

Obituary . . .

1908. He was one of the original construction engineers for the Pennsylvania Railroad Terminal in New York City.

Wm. M. List, 75, a railroad contractor in Kansas and Missouri for 40 years, died at Omaha, Neb., Nov. 4. He was a founder of the Associated General Contractors of Missouri.

Raymond C. Force, 71, former president of the Caterpillar Tractor Co., and a director died Nov. 15 in Oakland, Calif. Mr. Force was manager of the Best Tractor Co. when it merged in 1925 with the Holt Manufacturing Co. to form Caterpillar Tractor Co., of which he became first president.

Archie Burton Pierce, 83, civil engineer and former professor at the universities of California and Michigan, died at Monterey, Calif., on Nov. 14. He was with the Southern California Edison Co. 16 years and was the designer of dams at Florence and Shaver lakes.

Walter A. Matthews, 76, a retired structural engineer, died Nov. 16 in Elmira, N. Y. He was with the American Bridge Co. in Elmira until his retirement in 1940.

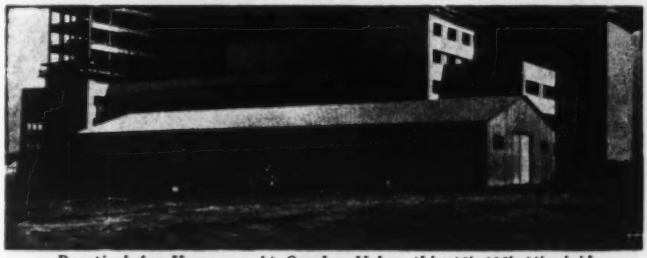
George L. Huckins, 76, Melrose, Mass., a civil engineer for the Boston & Maine Railroad, was killed Nov. 20 when his automobile collided with a train on the Main Street crossing in Wakefield, Mass. His home was in Melrose.

Adam W. Seibel, 83, the last of four sons who carried on the general contracting business founded by their father, Henry Seibel, 75 years ago, died Nov. 11 in Ellisville, Mo. Seibel's home was in Manchester, Mo., where he was a member of the Board of Education for 55 years, Sunday School superintendent for the St. John's Evangelical and Reformed Church for 48 years.

James MacDonald, 35, marine engineer, naval architect and retired chief of the maintenance and repair division, Maritime Administration, died Nov. 8 in Philadelphia. He joined the old Maritime Commission in 1941 and was assigned to the War Shipping Administration during World War II and was in charge of foreign repairs and salvage of vessels. He returned to the commission in 1946 and later became chief in the Maritime Administration of the Commerce Department.

Contractors—
Build Faster...Profit Sooner
with BUTLER BUILDINGS

Adaptable to Customers' Needs . . . Automobile showroom and shop at Ames, Iowa, shows how Butler Buildings meet special requirements. Here sturdy Butler structurals and aluminum, insulated roof are combined with masonry sidewalls. Note large display windows.



Practical for You . . . At Omaha, Nebr., this 40'x120'x14' rigid frame Butler Building is used as contractor's warehouse. Butler Buildings also make permanent yet portable job site shelters, field offices.

Less building time with Butler Buildings means greater satisfaction for your customers . . . quicker profits for you. Butler Buildings are ready for use *faster* . . . earning you your fair profit from the job *sooner*. And Butler Buildings are fire-safe, weathertight, easily insulated at low cost. Available in a wide range of sizes.

Start now to save and profit with Butler Buildings for yourself and your customers . . . see your friendly, helpful Butler distributor, or mail coupon today.

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the Englander Company
SLEEP PRODUCTS

Selects Birmingham to Serve the Southeast

It's a short, fast haul from the Birmingham district to anywhere in the rapidly developing Southeast. This is reason No. 1 why so many diversified enterprises are establishing new plants, warehouses and sales offices at this crossroads of the Southeastern market.

Among recent new arrivals is the big plant of The Englander Company, Inc., manufacturers of a complete line of nationally advertised "sleep products," including the exclusive mattress of Goodyear's Airfoam with Englander's Red-Line foundation, innerspring mattresses, box springs, dual sleeping equipment.

I. M. Pink, president of The Englander Company, gave these reasons for placing the new plant in Birmingham:

"The South was a growing market for our nationally advertised products. Our expansion program called for another factory located in a strategic spot to serve the largest trading area. After a thorough survey, Birmingham was selected as another link in our chain of bedding plants from coast to coast. Right from the initial announcement of our plans to build in Birmingham, we have had an enthusiastic response from our trade."

Industries that sell in the Southeast have tremendous growth opportunities today in the Birmingham district—nationally recognized for skilled labor, ample power, abundant raw and semifinished materials, and superior transportation facilities.

* * * * * *

The Committee of 100 or any of the undersigned members of the Executive Committee will welcome the opportunity to give you confidential and specific data regarding the advantages of the Birmingham district for your plant, office or warehouse.

BIRMINGHAM COMMITTEE OF 100
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Bradford C. Colcord, President, Woodward Iron Co.
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Donald Comer, Chairman of the Board, Avondale Mills
William P. Engel, President, Engel Companies
W. W. French, Jr., President, Moore-Handley Hardware Co.
Clarence B. Hanson, Jr., Publisher, The Birmingham News
W. H. Hoover, President, Employers Insurance Co. of Alabama
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Thomas W. Martin, Chairman of the Board, Alabama Power Co.
J. C. Persons, President, First National Bank
O. W. Schonbacher, President, Loveman, Joseph & Loeb
A. V. Wiebel, President, Tennessee Coal, Iron & Railroad Co.

MEETINGS

C. E.'s should lead in civil defense

The civil engineer is in the natural position to be a leader of civil defense in case of an emergency attack, Dr. Lillian Gilbreth, consulting management engineer, said before the Junior Branch, Metropolitan Section, American Society of Civil Engineers, in New York Nov. 14.

She also said, of engineering education, that the 5-year curriculum is not necessarily the answer for the tendency to crowd in more courses. Rather, courses that require university facilities such as laboratories should be left in the curriculum, and subjects that can be gotten from books alone should be pursued by the individual after he leaves school. She felt that in times of manpower stress, schools should resist as impractical and harmful the pressures to institute "engineering aide" courses for women, and accelerated courses for all students.

Professional society programs should seek to point the subjects that are common with other groups, Mrs. Gilbreth said. This objective can be met by inviting talks by experts from other fields, and by offering speakers.

J. T. Douglas, Minister of Highways and Transportation for Saskatchewan, has been named president of the Western Canada Association of Highway Engineers.

New directors and members of the board of governors of the Washington Building Congress are: Directors, Maurice R. Colbert, C. W. Humphreys, Dean J. Locke, C. F. Preller, A. Hamilton Wilson, Julian E. Berla and Maurice R. Palmer. Other members are E. C. Baltz, Stewart H. Beall, C. Warren Bogan, Merrel A. Coe, Robert H. Davis, James H. Ferry, J. H. Hill, Walter M. Johnson, William R. Lockhart, Forrest Martell, Russell B. Martin, Lloyd T. Meeds, Howard B. Noyes, John A. Reilly, B. T. Rome, Harrison Somerville, R. H. H. Spidel, Paul Stromberg, Fred W. Tropp, J. C. Turner and A. Herrmann Wilson.

Roy L. Williamson, city manager of Rocky Mount, N. C., has been elected president of the North Carolina League of Municipalities. Other officers: Mayor J. O. Talley, Jr., of Fayetteville, first vice-president; Mayor J. W. Hoffler of Wallace, second vice-president; and City Manager H. L. Burdette of Hickory, third vice-presi-

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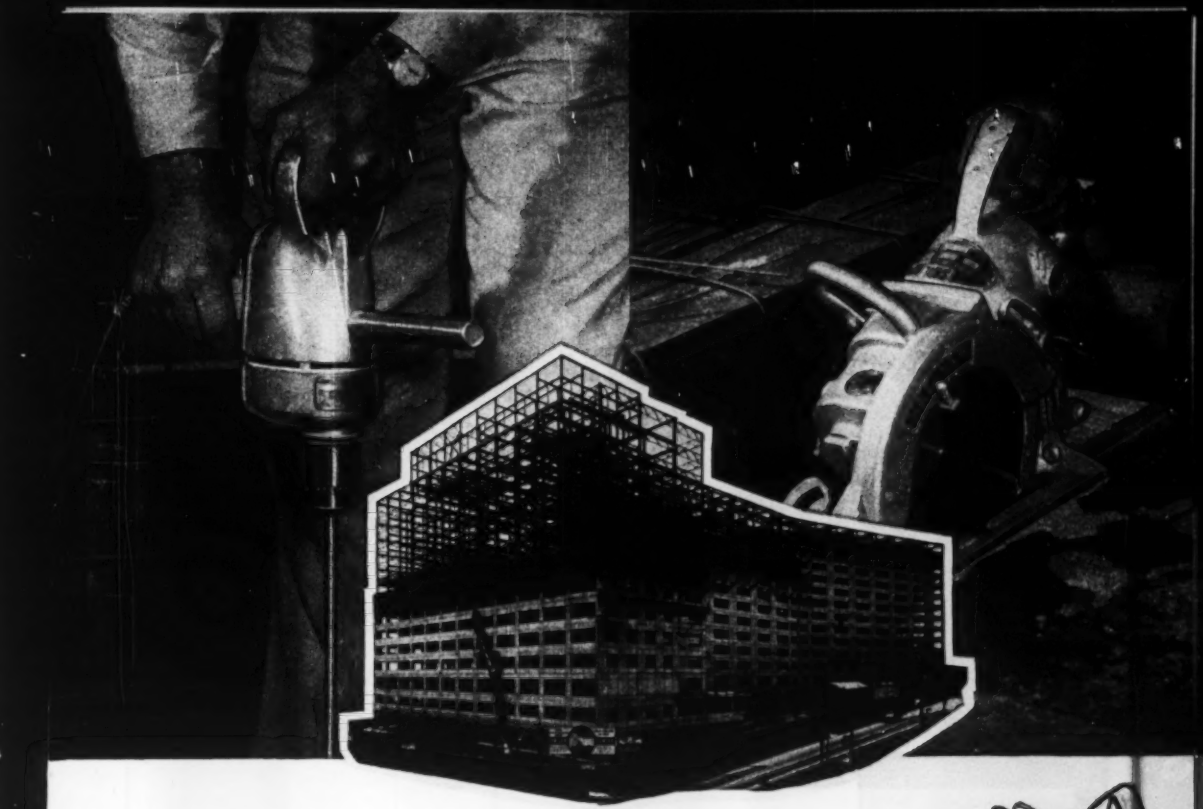


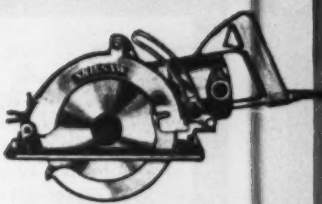
"We're Using 95 SKIL Saws and Drills on $21,000,000 Statler Job!"

says **J. L. MORRIS,** General Superintendent

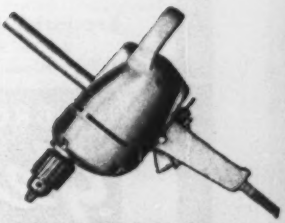
ROBERT E. McKEE GENERAL CONTRACTOR, INC., Los Angeles, California

"This new Statler Center is the biggest hotel since the Waldorf," says Mr. Morris, "a $21,000,000 project. Naturally, with a tight production schedule, we're using only tools we can depend on. And that means SKIL Saws and Drills." Mr. Morris explains, "We're giving 95 SKIL Tools real punishment, and they give back top performance. We're using 65 SKIL Saws, Model 77 and Model 825. And," he adds, "We've got 30 SKIL Drills in four different models going all the time. We give unqualified approval and praise for this equipment and SKIL service."

See your distributor for complete information or call your nearest SKILSAW factory branch



SKIL Saw Model 825—Powerful 8¼" saw with 2⅛" cutting capacity. Base adjustments: 0° to 2⅛" vertical depth of cut; 0° to 45° bevel adjustment; 2⅛" depth of cut at 45°. Free speed of blade: 3000 r.p.m. Overall length: 18". Weight: 17¼ lbs.



SKIL Drill Model 80—Standard duty ½" drill. Capacity in steel: 5/64" to ½"; in hardwood: 5/64" to 1¼". No-load speed: 450 r.p.m. Overall length: 11½". Weight: 8½ lbs.

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SKIL PORTABLE TOOLS

Dig and dump . . . speed the cycle . . . take those shocks . . . *stay on the job*—that's the big order you give a hoist rope. To have it filled, put *Preformed* Yellow Strand Hoist Rope on your power shovel. Specify Lang Lay with Independent Wire Rope Core—6 x 19 for ropes up to and including 1″ in diameter, 6 x 41 for sizes 1⅛″ and larger.

In *Preformed* Yellow Strand, whatever the construction, internal stresses have been relaxed. You gain with longer rope life, fewer shutdowns for replacement, more production for your rope dollar. Call your B & B distributor now so you'll have a real *working* rope on hand when it's time to change your hoist, drag, scraper or other heavy-duty line.

Broderick & Bascom Rope Co., St. Louis 15, Mo.

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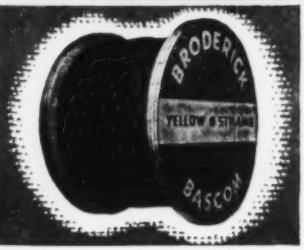
PREFORMED WIRE ROPE



Meetings . . . .

dent. New directors: Randy H. Hamilton, city manager of Carolina Beach; Z. G. Hollowell, city manager of Goldsboro, W. A. Roebuck, town clerk of Plymouth; Mayor George W. Dill, Jr., of Morehead City; Mayor W. Howard Pruden of Roanoke Rapids; Mayor S. Carlysle Isley, of Burlington; Mayor Hector McLean of Lumberton; Mayor Victor Shaw of Charlotte; Mayor Marshall Kurfees of Winston-Salem; J. C. Hill, town clerk of Mount Airy; Mayor A. A. Pons of Valdese; and Mayor Earl W. Eller of Asheville.

A five-man committee to study proposals to relieve traffic congestion in Wilmington, Del., has been appointed by the Delaware Society of Professional Engineers. They are: Haakon A. Abildso, of the DuPont Co., Robert J. Barkley, of the Hercules Powder Co., Evald R. Streed, of the Delaware Power and Light Co., Elmer C. Graesser, of the National Vulcanized Fibre Co., and Alick Murray, of Damon and Foster.

Twenty-five DuPont Company field project managers from 22 construction sites throughout the country held their annual three-day conference at Wilmington, Del., recently to acquaint themselves with the latest engineering techniques and practices with an eye toward improving construction efficiency in the field.

Lieut. Col. T. F. Howlett of Toronto has been elected president of the Military Engineers Association succeeding Maj. Gen. G. R. Turner of Ottawa. Other officers elected for the 1952-term: Vice-presidents, Lt. Col. A. Webster, Vancouver; and Lt. Col. R. J. Cassidy, Halifax; directors, Lt. Col. M. F. Allean and Maj. L. L. Anthes, both of Toronto; secretary, Capt. G. A. Spear, Ottawa; treasurer, Capt. H. M. Woodroffe, Ottawa.

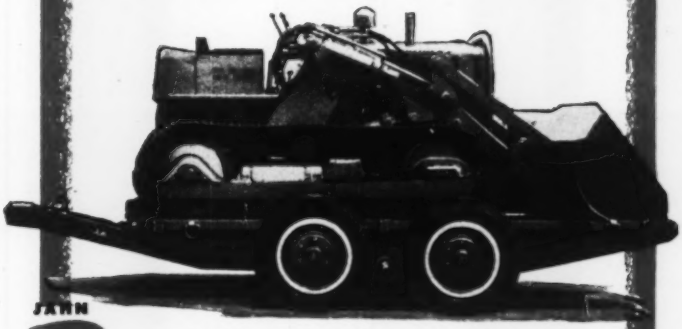
The following new officers were elected for affiliated groups meeting in convention with The League of Texas Municipalities:
Garland P. Franks of San Angelo, president of the Texas City Managers Association; George Williams of River Oaks, president of the Texas Public Works Association; Edward Geeslin of Fredericksburg, president of the Municipal Utilities League; William Anderson, Corpus Christi, and Marvin R. Springer, Dallas, president and vice-president respectively of the City Planners Association.

New officers of the American Bridge, Tunnel and Turnpike Association are: President, Charles M. McCormick, president of the Interstate Bridge Co., Wheeling, W. Va.; vice-president, Harry Taylor, assistant general manager of the Tri-Borough Bridge and Tunnel Authority, New York City. Wm. A. Codd, Baltimore, and M. J. Vieira, Jamestown, R. I., were re-elected secretary and treasurer, respectively.

CALENDAR

Amrican Municipal Congress, Washington, D. C. Dec. 10-12.
Kansas Contractors Association, annual meeting, Hotel President, Kansas City, Mo., Jan. 10-11.
N. Y. Section, American Water Works Assn., winter luncheon meeting, Hotel Park Sheraton, N. Y., Jan. 15.
Highway Research Board, annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.
Canadian Construction Association, annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.
National Association of Home Builders, annual convention and exposition, Conrad Hilton and Congress Hotel, Chicago, Jan. 20-24.
American Road Builders Association, Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.
Wisconsin Highway Commissioners and Highway Committee Members Association, winter conference, Schroeder Hotel, Milwaukee, Jan. 22-24.
Associated Equipment Distributors, Conrad Hilton Hotel, Chicago, Jan. 27-31.

F.O.B. NEXT JOB



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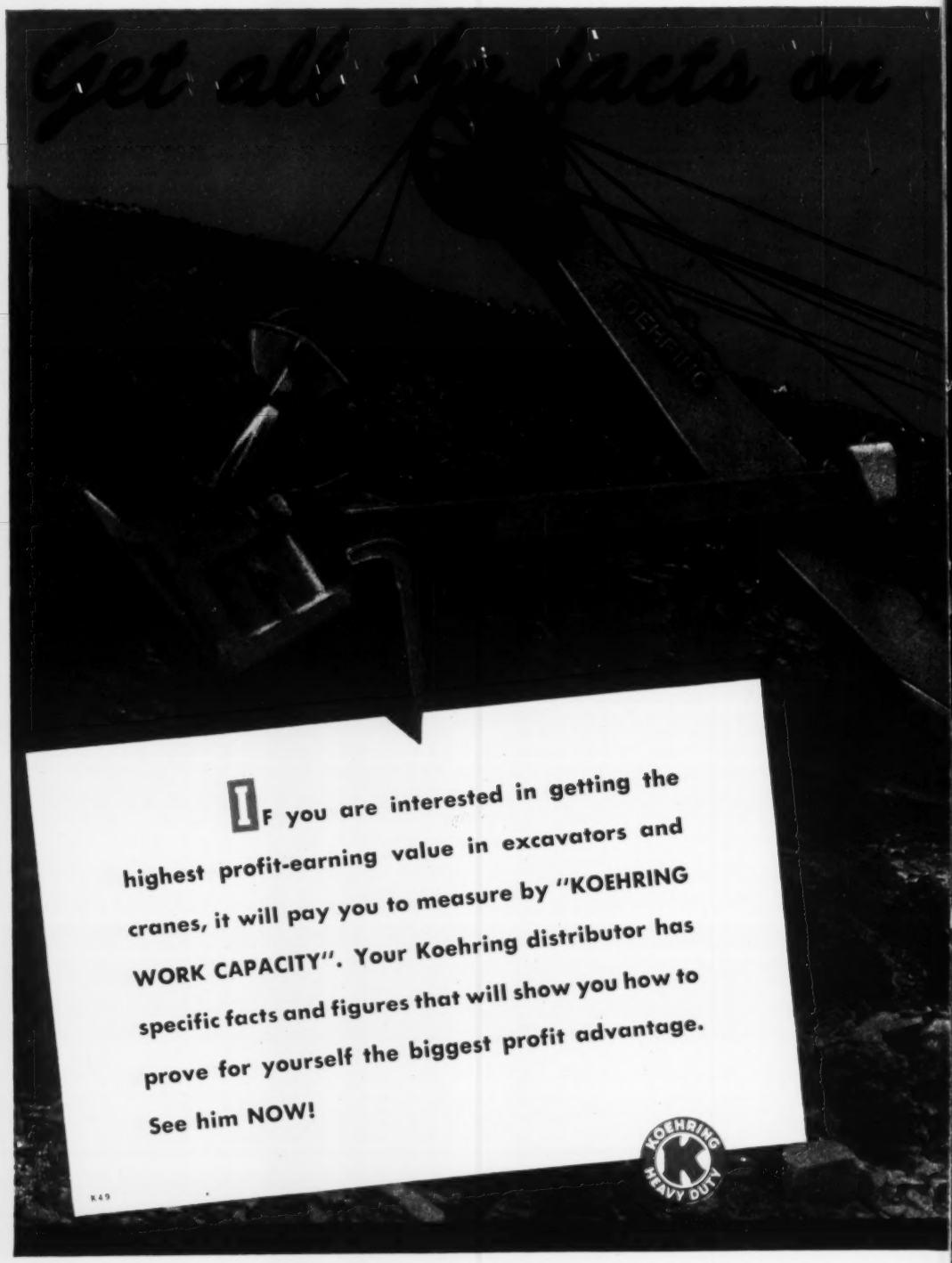
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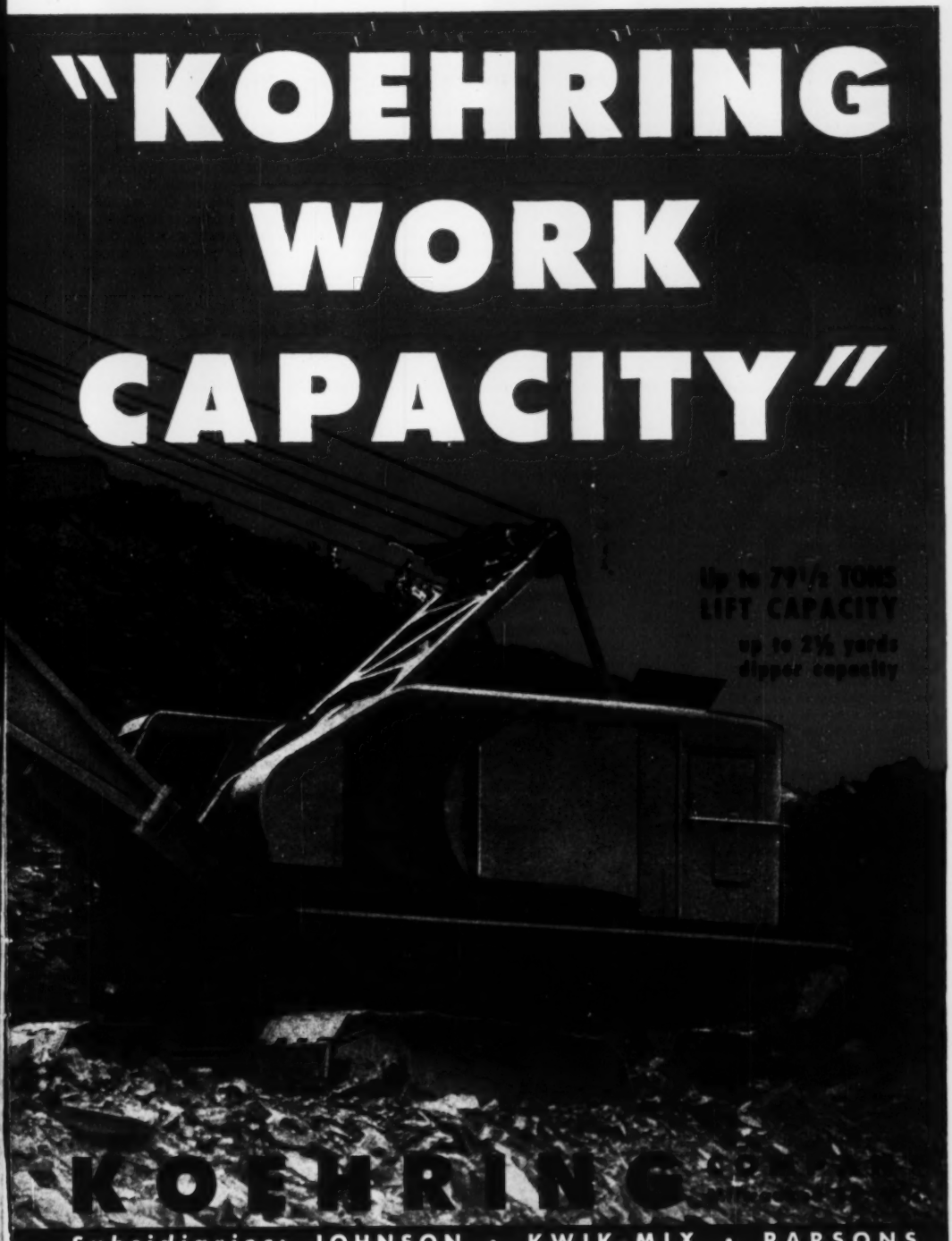

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Open way for white-collar raises

The Salary Stabilization Board has opened the doors for a salary increase of more than three percent for an estimated five million white-collar workers, through SSB order 6.

What the order does is let the employer give those workers whose salaries come under SSB rules the same raise (in percentage) that he has given his hourly employees under Wage Stabilization Board rules. Roughly, SSB regulations apply to those executive, professional and administrative employees who receive a salary, do not get overtime under the federal wage-hour law, and do not belong to a union.

• **End inequity**—In issuing its order, SSB ended a discrimination against white-collar people which, since August, has denied cost-of-living increases to salaried workers, while allowing them for hourly workers. (An arm of WSB—Construction Industry Stabilization Commission—long since has started a special system of adjustments up to and above the catch-up formula for construction workers, as reported in ENR Sept. 6, p. 81).

WSB has been way ahead of SSB in formulating wage policies—it got a head start and has first responsibility for laying down way policies which SSB must then tailor to fit the employers' salary problem.

But for this reason, there has been a growing inequity between hourly and salaried employees since last August, when WSB issued its regulation 8 so that employers could grant increases to wage earners based on changes in BLS consumers price index. SSB didn't issue a salary regulation to match.

• **Moves made**—A few weeks ago, SSB moved to alleviate some of this inequity when, in general order 4, it okayed compensation of foremen and other comparable supervisors who had to work longer hours, but who didn't get overtime under previous rules.

And now SSB has gone a lot further to help the front-line management team. In the new order, the employer figures the percentage increases granted hourly workers since January. He does not count anything given under the 10% catchup, or for merit or length-of-service, because salaried employees are already entitled to this under other SSB regulations.

The boss can then apply this percentage to his salary payroll, and come up with a salary increase fund that he can pass around to the salaried group—with the reservation that he must first restore the normal differential between hourly workers and foremen and supervisors and then correct what inequities exist within the entire salaried group. After that he can spread the rest of the fund among any of the salaried employees with only this limitation: No one employee can get—from this part of the fund—a percentage increase of more than the percentage used in computing the fund.

WSB says OK; Painting contractors: No

The joint executive committee of three Brooklyn locals of the Brotherhood of Painters, Decorators and Paper Hangers of America notified all interested parties today that they were calling a strike against and removing their men from jobs of the Associated Painting Employers of Brooklyn.

After a procession of routine meetings and requests, WSB approved a wage increase for the painters in question on October 26, retroactive to September 4, 1951. Regular painting wage increase was from $2.60 to $2.83; for work on outside swinging scaffolds, from $3.00 to $3.23. This is in addition to a 7% welfare fund which continues as is.

Subsequent negotiations resulted in the employers refusing to honor the agreement. The contract between the painters in question and their employers is independent of the New York City setup with the Building Trades Employers' Association, although the Associated group is part of the BTEA's Master Painters group.

AFL-CIO squabble holds up work on steel plant

Construction of the $5,000,000 addition to a Kokomo, Ind. steel plant has been held up since October 23 by a jurisdictional quarrel which lines up the AFL against CIO forces, with all hands waiting for a decision from the National Labor Relations Board.

Ralph K. Clifford, president of the Continental Steel Company, says it's a test case in a national drive of AFL unions to preclude the CIO from building and construction work. Contracts in connection with the plant expansion have been or will be awarded to AFL trades with the exception of electrical, pipefitting and equipment insallation work. The company wants their own forces, 2600 members of

Local 1054, United Steelworkers of America, CIO, to handle this work, as they always have.

AFL craft unions requested that the company award them this work, too, and upon refusal had their electricians and pipefitters strike the partially-finished project. Result: 90 workers of the Wolf Construction Company, Logansport, Ind., have refused to cross the picket line. Wolf, has a contract for excavation, foundations and floor work is paying a daily rental of $125 on unused floor forms and has filed unfair labor practice charges in the NLRB Chicago regional office accusing the AFL'ers of engaging in an unlawful jurisdictional dispute with the CIO and of carrying on a secondary boycott.

Lester Asher, attorney for Local 873, AFL electricians, says that the whole affair is an effort on the part of AFL unions to carve out separate units at Continental for electricians and pipefitters, taking the workers out of CIO.

Labor briefs . . .

• **Toledo constructors' increase**—Salary increases have been given City of Toledo construction workers in seven trades. Brickies, electricians, plumbers, steamfitters, bridge workers, painters and carpenters have been upped from their 202 point rating and annual $3,835 to a 223 point rating and accompanying $4,205. The city insisted on the right to interchange craft members, however, on minor maintenance jobs.

• **How many apprentices?**—The Ohio Department of Industrial Relations has authority to establish prevailing wages to be paid by contractors on public projects in the state, but cannot fix the ratio of apprentices to journeymen, according to an opinion of Attorney General C. William O'Neil. Union contracts heretofore on other projects provided one apprentice for the first two journeymen and one for four thereafter.

• **Good record**—The Toledo Building Congress, Inc., formed in 1937, last week was cited by local contractors and labor men as a major force in settling labor troubles in the area. Latest show of influence was in October, when AFL painters went on strike, spent five days in fruitless debate with employers, then settled the matter under Congress auspices, in about two hours. Disputes are handled by a 24-member conference board (labor and management) chairmanned alternately by labor or management representative. Since 1939, it has settled something over 200 major disputes.

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Digging in heavy blasted lava rock, this low-cost ⅜ yd. Bantam Trench Hoe recently handled 500 cu. yds. per day on Memorial Hospital expansion job for Rex Johnson Excavating Co., Irvin Falls, Idaho. Operating on 13-second cycles, with 45° to 90° swings, Johnson's Bantam averaged ten 5-yd. truck loads per hr. on [illegible] yds. of excavation. In addition, fast-moving Bantam has dug 1800' of 4' trench in 10 hrs. . . . has handled scores of scattered basement and pioneering jobs during the past 18 months, with only minor repairs. No wonder Operator John Brown exclaims, "Bantam is the most mobile and all-around satisfactory machine I've ever used." For more facts, see your Bantam Distributor, or write Schield Bantam Co., 201 Park St., Waverly, Iowa.

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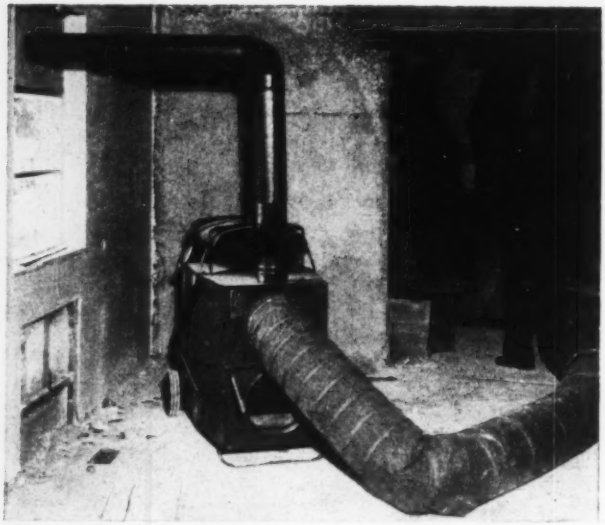

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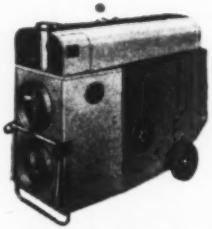

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MOLINE, ILLINOIS

Contract awards steady for month, show 1.3% gain over last November

Construction contracts awarded during November totaled $1,024,700,000—only two-tenths of one percent below the October award total, and 1.3% over the contract award total posted during November, 1950, ENGINEERING NEWS-RECORD reports show.

Public works added up to $386,517,000 during November, while private construction totaled $638,258,000 for the month.

Federal, public and private construction continue to show increases over the same eleven-month period last year. Federal construction is up 92% on a cumulative basis, public construction is 27% over the same eleven months of 1950, and private awards are now running 10% ahead of last year.

The eleven-month total for public construction is $5,840,206,000 compared to $4,605,154,000 during the same period in 1950. Federal government contract awards, for the same categories covered in public construction, total $2,139,405,000 compared to $1,112,805,000 during the same eleven months last year.

For private construction, the cumulative total this year is $6,935,984,000, compared to $6,321,834,000 during the comparable 1950 period.

• **Public works leaders**—Top categories in the public works contract awards are unclassified construction, running 154% ahead of the comparable 1950 period; public housing, up 91%; public buildings, other than housing, up 27%; earthwork and waterways, 17% over 1950; and sewerage contracts, 16% above the 1950 mark.

In the public works grouping, three categories are lagging behind 1950. These are bridges, 16% under last year; streets and roads, down 6% from last year; and waterworks are off 5%.

Private construction is still led by industrial construction which soared 152% over the first eleven months of 1950. In dollar volume, the ENR contract awards for industrial construction now add up to $3,864,262,000 for the first eleven months of 1951, compared to $1,533,324,000 last year.

Bridges, continuing at a level 20% above 1950, show the only other gain in private construction.

Meanwhile, government controls on commercial construction are showing their effects. Commercial construction (residential) is down 37% from the comparable 1950 period, while other commercial buildings show a 38% decline. Unclassified construction is now running 30% under last year.

While all other sections of the country continue to show a higher cumulative total of contract awards this year than last, the Middle Atlantic states are still 7% under 1950.

Business briefs . . .

• **Asks early filing**—Builders and sponsors of multi-family residential structures who need controlled materials—steel, copper, or aluminum—for the second quarter of 1952 are asked by Administrator Raymond M. Foley of the Housing and Home Finance Agency to file their requirements by Dec. 15.

• **"Fannie Mae" committments**—The Federal National Mortgage Assn. made advance committments to purchase approximately $39 million worth of mortgages on programmed defense and military housing during the month of October.

• **Award bond issue**—An $80 million Detroit, Michigan, bond issue which will accelerate construction of the John C. Lodge and Edsel Ford expressways, was sold to a syndicate headed by E. Blyth & Co., of Chicago, at an interest rate of 2.12%.

• **$65 million for construction**—New York State will receive bids Dec. 11 on issues of general obligation bonds totaling $65 million. Included will be $45 million for highways and $20 million for grade crossings.

• **Small users get help**—The National Production Authority has given the small user of controlled materials—steel, copper, or aluminum—a more liberal allowance. On April 1st, the amounts to be obtained through self-certification will move up as follows: carbon steel, 30 tons per quarter, compared to the present five tons; alloy steel, eight tons, instead of the present one-half ton; copper, 3,000 pounds, instead of 500 pounds; and aluminum, 2,000 pounds, instead of the present 500 pounds.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—NOVEMBER, 1951

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000
Five Weeks — Thousands of Dollars (000 Omitted)

	November, 1951						U. S. Cumulative—		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	Eleven Months 1951	Eleven Months 1950	Change '50 to '51	November 1951
Public Works											
Waterworks	1,591	2,061	7,293	2,022	2,423	5,995	21,385	195,254	204,678	− 5	980
Sewerage	574	10,228	1,707	20,614	4,735	3,731	41,589	311,558	269,031	+16	930
Bridges	577	4,316	2,162	2,870	3,462	5,705	19,092	282,657	337,565	−16	1,385
Earthwork and waterways	144	.....	3,196	548	19,148	12,763	35,799	472,186	404,389	+17	2,460
Streets and roads	6,517	16,997	21,965	10,014	26,792	14,777	97,062	1,098,155	1,166,027	− 6	1,809
Public buildings, residential	1,224	2,127	7,850	2,069	3,884	330	17,484	594,435	311,561	+91	14,025
Other public buildings	15,884	29,792	13,314	17,374	20,383	21,114	117,861	1,970,978	1,552,115	+27	15,758
Unclassified	1,424	6,370	7,881	4,400	6,106	10,064	36,245	914,983	359,788	+154	15,754
Total public	27,935	71,891	65,368	59,911	86,933	74,479	386,517	5,840,206	4,605,154	+27	53,101
Federal government (included in above classifications)	1,593	15,652	20,035	8,842	28,724	26,901	101,747	2,139,405	1,112,805	+92	37,445
Private											
Bridges	.....	.....	.....	.....	65	.....	65	11,790	9,795	+20	.....
Industrial buildings	2,308	42,930	67,385	41,548	134,737	16,888	305,796	3,864,262	1,533,324	+152	6,435
Com'l. buildings, residential	9,120	85,760	27,235	53,671	55,493	23,067	254,346	1,880,489	2,985,080	−37	1,940
Other commercial buildings	.....	10,095	2,910	8,610	18,183	1,550	41,348	573,462	924,066	−38	4,626
Unclassified	160	9,000	2,288	2,660	22,480	115	36,703	605,981	869,569	−30	5,794
Total private	11,588	147,785	99,818	106,489	230,958	41,620	638,258	6,935,984	6,321,834	+10	18,795
Total Engineering Construction:											
November, 1951 — 5 weeks	39,523	219,676	165,186	166,400	317,891	116,099	1,024,775	.....	.....	.....	71,896
October, 1951 — 4 weeks	37,669	199,831	210,680	206,490	213,861	158,642	1,026,973	.....	.....	.....	58,054
November, 1950 — 5 weeks	38,686	221,209	201,074	170,016	237,108	143,953	1,012,046	.....	.....	.....	99,404
Eleven Months — 1951	584,220	2,396,629	2,613,850	2,233,175	3,158,360	1,789,954	.....	12,776,190	.....	+17	1,102,279
Eleven Months — 1950	470,555	2,572,829	1,775,140	1,703,709	2,755,122	1,649,633	.....	.....	10,926,988	.....	722,720
% Change '50 to '51	+24	−7	+47	+31	+15	+9	.....	.....	.....	.....	+53

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
January Materials, and Labor Prices will appear in January 10, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant	CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.76	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191	$11.50
Baltimore	3.71	3.40	3.35	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82g	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.58	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.46	3.18	3.16	2.00‡c	2.00‡c	2.05‡c	2.35‡k	2.35‡k	....	....	.21	.225a	10.95f
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.65a	3.65a	2.85‡	2.85‡	....	.23	13.00q
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.10
Detroit	3.25f	2.98	3.04	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.55f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23ag	.23/24c	10.95b
Los Angeles	4.00a	3.52a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11f	.22	10.00hm
Minneapolis	3.68cd	3.37cd	3.33	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23ik	....	11.75fi
Montreal	2.66ac	2.51ac	....	2.50	2.50	2.00s	1.55aj	1.85aj	....	....	.28	.20a	9.95ek
New Orleans	3.20s	2.90s	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.81	3.50	3.40	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.30an
Philadelphia	3.38/3.68‡	3.07/3.37‡	3.38‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.22/3.43b	2.84/3.10b	3.07/3.22	2.90am	2.90am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27cs	10.40
San Francisco	3.35	2.95	....	1.88	1.88	1.98	1.98	....	....	....	....	.22cl	10.30c
Seattle	3.80a	3.25a	4.50h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	24j	.3325f	10.95j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paying up to $3.80 for cement brought in from outside sources. *g* Warehouse pickup. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5 x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *e* 2,000 lb. coner. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

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Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O.	2.60†
Nazareth Pa	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.31
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

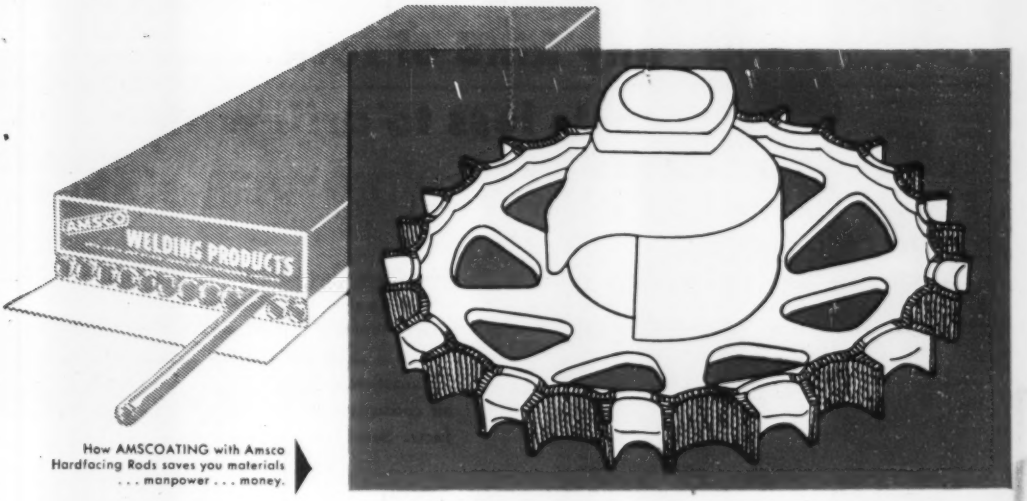
†*Prices to hold for fourth quarter of* 1951.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick Per M 3½x4½x8 in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$32.25	$0.1975	$0.339	$0.095	$0.185	$0.105	$0.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09s	.09	0.12
Birmingham	.....	45.50s	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00ax	35.50ax	.105a	.22a	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bw	29.25bw	.0875bw	.16hw	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.12g	23.00[4]	.....	23.00[4]	.....	.10254w	.194w	.....	.114	.194
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.45	.....	26.45e	.....	.117w	.....	.0925	.....	.2166
Kansas City	e	e	e	18.55cl	.....	.....	0.19B	.0725w	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dmx	.....	18.50dx	.....	17.00dx	.....	16.00dw	.0825f	.1525j
Minneapolis	.....	.....	2.83A	23.90	.....	22.90	.....	.0994w	.....	.0894	.1035	.....
Montreal	137.00	e	e	27.00n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.187ns	.229ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	.....o	.085ew	.....o	.0882	.085	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26et	46.58et	.1071w	.1971w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	.....	.1698	.....	.0865/.089e	.....	15	.....	.....
San Francisco	.....	.....	.....	17.00q	32.50qp	17.00qkv	32.50qkv	19.00q	36.50q	17.50w	.085y	.....
Seattle	.....	.....	.....	17.00A	37.50A	16.25hv	.....	19.50A	.....	18.50Ahv	.095A	.105Ar

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat. *i* 3 x 3½ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks. *y* F.o.b. Oakland. *z* F.o.b. refinery Cleveland. *B* 55 gal drums.

(*Continued on page* 95)



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Hardfacing rods—and recommendations for their use—are as sound as the manufacturer who makes them. AMSCO has been fighting wear for a half-century—first with Manganese Steel, and later with AMSCO Hardfacing Products.

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AMSCOATING can make old Tractor Drive Sprockets last 3 times longer than new.

Here's another way to beat the high cost of replacements, down-time and maintenance . . . AMSCOATING the teeth on Tractor Drive Sprockets. Time after time service records have shown that AMSCOATING of sprockets results in these dollar-saving advantages:

1. ***On an average — 3 times the service life of a new, unhardfaced sprocket.***
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To top it off, sprocket replacements can practically be eliminated. An AMSCOATED sprocket can be reclaimed over and over again . . . *at about half the cost of a new one!*

Get all the facts on how to make these big savings . . . write today for instruction sheet on AMSCOATING sprockets, and the name of your nearest AMSCO Distributor.

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AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION

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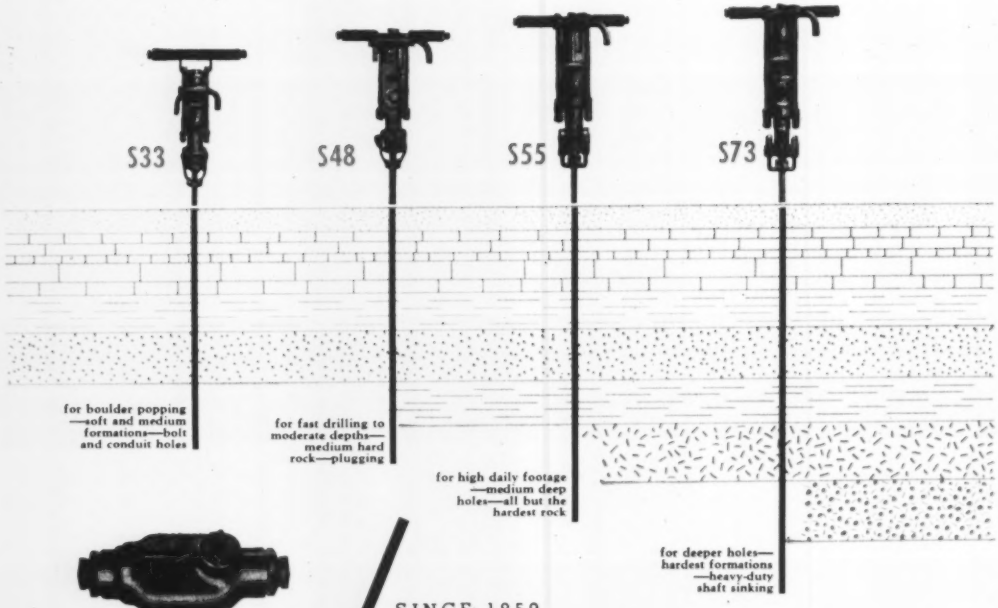
No matter what kind of rock you find underfoot —there's a Gardner-Denver Sinker of the correct weight and power for lower drilling costs. Every model is designed for fast penetration—powerful rotation—clean blowing—easy holding—low air consumption. Bulletin HHD-11 gives all the facts. Send for your copy today.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for boulder popping —soft and medium formations—bolt and conduit holes
for fast drilling to moderate depths— medium hard rock—plugging
for high daily footage —medium deep holes—all but the hardest rock
for deeper holes— hardest formations —heavy-duty shaft sinking

Drills can't run dry when the LO12 Automatic Oiler guards your air lines. It stops the flow of air when it runs out of oil.

SINCE 1859

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In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. struc- tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85		$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	.....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add switch	$/ewt for Del.	EXPANDED METAL LATH c Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.54	5.49f	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.20ak	6.19ck	6.19ck	....	.15	40.50	44.50			
Chicago	5.70	4.95ff	4.95ff	.0625	....	34.50	38.50			
Cincinnati	6.24ak	5.84r	....	....	....	38.50uzee	41.50uzee			
Cleveland	5.82	4.81v	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10e	....	....	....	60.00s	72.00s			
Detroit	6.09	5.74n	....	....	.20	53.00	58.00			
Kansas City	6.30nn	5.90f	....	....	....	39.50	41.50			
Los Angeles	6.45/kk	6.15g	....	....	.15	48.00	54.00kk			
Minneapolis	6.16kk	7.12ll	7.12ll	....	.30	37.00	40.00			
Montreal	6.55kk/6.75t	4.75i	4.75g	....	....	57.00hh	59.00			
New Orleans	....	5.55ok	....	.05	.10	40.00	40.00			
New York	6.30v	6.25	6.25	....	.30	38.50ot	45.00ot			
Philadelphia	5.90	5.95	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis	6.03a	5.34e	5.34e	....	....	47.00aa	53.00aa			
San Francisco	7.15ii	6.50	....	....	.15	40.50	43.50			
Seattle	4.30e	5.55el	....	....	....	57.00mmm	47.00mmmz			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.89

* At Producing Mill.

‡ Delivered. b 1–5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢. ¾ in., 1 in., 15¢. 1¼ in., 25¢. 1½ in., 50¢. 2 in. 80¢. 2½ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. ii Rolled at Geneva mill. 400–999 lbs. kk 1" ribbed. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. ‡ 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

Mill	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 8 in. aa	std. 12 in. da.	24 in. da.	36 in. da.	CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14–41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39gg	$7.00gg	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.234	11.275A	178.20‡	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25m	2.75m
Boston	113.00	.532uvz	1.08uvy	4.41uvy	11.685uvy	187.80v	289.20v	1.55mg	3.80mg
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.574	1.107	4.32	11.38	154.80	239.70	.75m	2.80m
Cleveland	108.00	.462x	.89x	3.69x	10.045x	158.00m	245.65m	.80m	3.00m
Dallas	107.00	.436	.822	3.234b	9.17b	.....	.....	.49	1.60
Denver	115.00	.43dd	.74dd	3.18dd	....	.....	.....	.74m	2.50m
Detroit	108.00	.70	1.35	5.35	14.40	240.00m	360.00m	.80	3.20
Kansas City	106.00	.515	.92	3.64	....	216.70	.....	.70	3.00g
Los Angeles	122.00	.54f	1.07f	5.24f	13.06f	228.20f	348.90f	.85	2.40ff
Minneapolis*	112.00	.66mo	1.20mo	4.85mo	....	.....	.....	1.36hh	3.87hh
Montreal	100.00	.85x	1.50x	5.25x	....	.....	.....	106.50jkaa	282.70jkaa
New Orleans	101.50	.498	.905	5.03	....	229.70bb	402.00bb	.65	2.29
New York	111.00	.62	1.19	4.73	12.40	.....	.....	1.15	2.50
Philadelphia	110.00	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh	109.00	.386m	.752m	2.83m	7.622m	147.50	230.00	1.05h	2.50h
St. Louis	103.00	.51	.93	3.65	8.50	170.00	400.00	1.20il	2.85Al
San Francisco	122.00	.61d	1.20d	5.03d	12.57d	240.00dl	400.00dl	.95	3.20
Seattle	124.00	.51b	.91b	....	....	150.00c	.....	.88ee	2.65ee

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C 200–44T. c 4-in., $9.20. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. k Per 100 ft. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13–40. v C.L. f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. aa No. standard specifications in Can. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL, delivered, f.o.b. truck. ee 1% off for cash. ff 21 gg Extra strength ASTM C–200–50. * 6" to 8", 1.60 per ft.;

WROUGHT STEEL PIPE—

(Full standard weight)

Mill	3½ to 8 in. Lap Weld† Black %	Galv. %	2½ & 3 in. Butt Weld† Black %	Galv. %	a 3½ to 4 in. b Continuous
Lorain, Ohio	36.5a	14.5a	43.5	43.5	
Alpuippa, Pa.	33.5a	12.5a	43.5	43.5	
Sparrows Pt., Md.	33.5a	12.5a	41.5	41.5	
Benwood, W. Va.	38.0c	17.0c	43.5	43.5	
Youngstown, O.	35.5a	14.5a	42.5	42.5	
Indiana Harbor, Ind.					
Sharon, Pa.	.....	.....	43.5	43.5	
Wheatland, Pa.	.....	.....	43.5	43.5	
Etna, Pa.	.....	.....	43.5b	43.5b	
Fontana, Calif.	.....	.....	32.0b	23.0b	
	38.0b	17.0b	23.0b	21.0	
	38.0b	17.0cb	23.0	21.5	
	24.0ab	10.0ab	18.5b	21.0	

† Threaded and coupled.

weld. e 3 and 6 in.

***WROUGHT STEEL PIPE:** Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅜ in., 5½¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1 in., 17¢; 1½ in., 23¢; 1¾ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09. 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft, same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 20.0, galv. + 50.0; 1¼ in. black, + 20.0, galv. + 49.5, 1½ in. black, + 14.0 galv. + 46.0; *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 48.5; 4½ in. to 8 in. black + 17.5, galv. + 44.0. Freight rates to destination to be added to name delivered price.

EVERYTHING FOR PIPING

in 30 principal cities

with Grinnell jobbers in practically every city, coast to coast.

30 GRINNELL WAREHOUSES AND SALES OFFICES provide the products, facilities and experience gained during more than one hundred years of piping progress.

Grinnell Warehouses have been opened up in these twelve cities in the last five years

BILLINGS	KANSAS CITY	PORTLAND
BUFFALO	LONG BEACH	SACRAMENTO
DENVER	MILWAUKEE	SANTA BARBARA
FRESNO	POCATELLO	SPOKANE

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Executive Offices
260 West Exchange St.,
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GRINNELL COMPANY, INC.
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BUFFALO 6, N. Y., 1374 Clinton Street
CHARLOTTE 1, N. C., 1431 West Morehead Street
CHICAGO 9, ILL., 4425 South Western Avenue
CLEVELAND 3, OHIO, 1294 East 55th Street
CRANSTON 7, R. I., 1341 Elmwood Avenue
HOUSTON 1, TEXAS, 1121 Rothwell Street
KANSAS CITY 16, MO., 2316 Burlington Avenue
MILWAUKEE 3, WIS., 1819 West St. Paul Avenue
MINNEAPOLIS 15, MINN., 240 Park Avenue
NEW YORK 17, N. Y., 347 Madison Avenue (office only)
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ST. LOUIS 10, MO., 1615 South Kingshighway
ST. PAUL 2, MINN., 194 West Fourth Street

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Sales Offices and Warehouses

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DENVER 2, COLO., 2175 Fifteenth Street
FRESNO 1, CALIF., 3081 Hamilton Avenue
LONG BEACH 10, CALIF., 1360 West Pacific Coast H'way
LOS ANGELES 13, CALIF., 520 Mateo Street
OAKLAND (Emeryville) CALIF., 6121 Hollis Street
POCATELLO, IDAHO, 650 South First Street
PORTLAND 10, ORE., 3240 Northwest 29th Avenue
SACRAMENTO 14, CALIF., 615 Seventh Street
SAN FRANCISCO 7, CALIF., 601 Brannan Street
SANTA BARBARA, CALIF., 305-313 East Haley Street
SEATTLE 1, WASH., 3101 Elliott Avenue
SPOKANE 2, WASH., East 909 Sprague Avenue

GRINNELL COMPANY OF CANADA, LTD.
Sales Offices and Warehouses

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TORONTO 9, ONT., 2440 Dundas Street West
VANCOUVER, B. C., 1150 Raymur Avenue

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pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco humidification and cooling systems

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R/A	6x12 R/A	12x12 R/A
Atlanta	† **$73 00**	**$76 00**	**$87 00**	**$89 00**	**$73 00**	**$76 00**	**$75 00**		
Baltimore	* **94 50**	**101 00**	**85 00**	**85 00**	**90 00**	**95 00**	**110 00**		
	104 50g	*104 50g*	*104 50g*	*104 50g*	*104 50g*	*104 50g*	*116 50*	*$108 00*	*$108 00*
Birmingham	† **83 00**	**83 00**	**70 00**	**80 00**	**83 00**	**85 00**	**95 00**		
	85 00	*85 00*	*75 00*	*80 00*	*80 00*	*79 00*	*85 00*	*83 00*	*85 00*
Boston	**96 00a**	**100 00a**	**97 00a**	**98 00a**	**103 106a**	**110 00a**			
	94 50	*92 50*	*105/110*	*110 00*	*108 112*	*108 114*	*126 00*	*126 00*	*126 00*
Chicago	** **96 00**	**100 00**	**92 00**	**96 00**	**96 00**	**100 00**	**105 00**		
	108 00	*105 00*	*100 00*	*103/104*	*103/104*	*103/104*	*110 00*	*110 00*	*110 00*
Cincinnati	* **96 00**	**98 00**	**84 00**	**92 00**	**96 00**	**98 00**	**118 00**		
	112 00	*112 00*	*114 00*	*114 00*	*114 00*	*114 00*	*130 00*	*125 00*	*125 00*
Cleveland	** **96 00**	**100 00**	**79 00**	**92 00**	**94 00**	**100 00**			
			100 00	*103 00*	*103 00*	*104 00*	*130 00*	*130 00*	*130 00*
Dallas	†† **78 00**	**80 00**	**69 00**	**58 00**	**59 00**	**59 00**	**98 00**		
Denver	*	*Not in stock*	*135 00*	*137 00*	*138 00*	*155 00*	*157 00*	*145 00*	*148 00*
Detroit	† **106 00**	**110 00**	**100 00**	**108 00**	**112 00**	**113 00**			
	99 75	*100 75*	*105 75*	*106 50*	*105 50*	*104 00*	*120 00*	*120 00*	*120 00*
Kansas City	* **120 00**	**120 00**	**120 00**	**120 00**	**120 00**	**120 00**			
	120 00	*120 00*	*120 00*	*120 00*	*120 00*	*120 00*	*145 00*	*155 00*	*155 00*
Los Angeles	† *100 00*	*100 00*	*98 00*	*98 00*	*98 00*	*98 00*	*115 00*	*115 00*	*115 00*
Minneapolis	# *130 00*	*130 00*	*135 00*	*135 00*	*135 00*	*135 00*	*150 00*	*150 00*	*150 00*
Montreal	*ab98 00*	*110 00*	*95 00*	*100 00*	*110 00*	*125 00*			
	175 00	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*
New Orleans	† **100 00**	**100 00**	**92 00**	**85 00**	**90 00**	**94 00**	**118 00**		
	† *100 00*	*102 00*	*103 25*	*101 25*	*101 25*	*99 50*	*142 00*	*142 50*	*117 00*
New York	‡ **112 115**	**115/118**	**100 105**	**107^{50} 112^{50}**	**112^{50} 117^{50}**	**117^{50} 122^{50}**	**150 160**		
			Range from $130.00 to $135.00				*155/160*	*145/165*	*145/165*
New York	** **96 00**	**100 00**	**81 00**	**94 00**	**98 00**	**100 00**	**120 00**		
	96 00	*96 00*	*104 00*	*104 00*	*104 00*	*104 00*	*118 00*	*130 00*	*130 00*
Philadelphia			**Range from $117.00 to $127.00**				**117 127**		
			Range from $130.00 to $140.00				*130/140*	*140/150*	*140/150*
Pittsburgh	†		**Range from $90.00 to $95.00**			**100 110**	**100 110**		
			Range from $100.00 to $110.00			*100/110*	*110/118*	*145/155*	*145/155*
St. Louis	*b*121 00c*	**124 50c**	**97 101**	**116 09**	**123 00**	**123 128**			
			121 00e	*129 00a*	*129 00a*	*130 00e*	*175 00e*	*175 00*	*175 00*
San Francisco	*A† 64.00*	*64.00*	*72.00*	*70.00*	*70.00*	*72.00*	*72.00*	*75.00*	*76.00*
Seattle	† *77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price	
	2x12 R/A	12x12 R/A	3/8"	1/2"
Atlanta			$22 32	$27 24
Baltimore	**$148 00**	**$148 00**	22 86	27 90
Birmingham	**115 00**	**130 00**	21 78	26 58
Boston			22 86	27 90
Chicago	**134 00**	**134 00**	18 72	22 80
Cincinnati	**125 00**	**125 00**	21 78	26 58
Cleveland			22 20	27 12
Dallas	**108 00**	**98 00**	18 72	22 80
Denver			13 92	16 98
Detroit			21 78	26 58
Kansas City			16 56	20 16
Los Angeles			13 38*ab*	16 26*ab*
Minneapolis			16 56	20 16
Montreal				
New Orleans	**148 00**	**140 00**	18 72	22 80
New York	**210 240**	**210 240**	22 86	27 90
Philadelphia	**190 200**	**190 200**	22 86	27 90
Pittsburgh	**100 110**	**115 125**	22 56	27 48
St. Louis			18 72	22 80
San Francisco			10 08*a*	12 30*a*
Seattle				

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. *c* Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common *l* 8–10 ft. lengths.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 3-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1", $172.00; on 1", $187.00. Exterior concrete form 3/8" $211.00, 1/2" $237.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a, Single or Double Thickness, A quality	WINDOW GLASS: B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2275
Baltimore	70–10%	78–10%	.2275
Birmingham	83%	83%	.2750
Boston	79–10%	79–10%	.2275
Chicago	78%*f*	78%*f*	.2275
Cincinnati	78%	78%	.2275
Cleveland	78–10–10%*f*	78–10–10*f*	.2675
Dallas	75%	75%	.2350
Denver	81–5%	81–5%	.2125
Detroit	78–10–10%	78–10–10%	.2275
Kansas City	80–10%	80–10%	.2325
Los Angeles	75%	80%	.23
Minneapolis	78–10%	78–10%	.2325
Montreal	45–15%*bc*	45–15%*bc*	.20.00*bi*
New Orleans	78%	77%	.2325
New York	82%*f*	82%*f*	.38*g*
Philadelphia	76%	78%	.2275
Pittsburgh	82%	82%	.20
St. Louis	80–10%	80–10%	.2325
San Francisco	70%	76%	.2275
Seattle	75%	78%	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *f* Disc from Oct. 1950.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $21.75. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – .1875	.2125– .22	.2325– .24
Rocky Mtn. States	.18 – .1925	.2125– .22	.2325– .245
Pacific N. W. States	.1775– .19	.21 – .2225	.23 – .2425
Pacific S. W. States	.175 – .1825	.2075– .21	.2275– .2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	By Rail: Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.70/.75	.85
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.75/.85	.86
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	‡	....	....	....
	Pine	‡	....	....	....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak	....	4.00*a*	....	5.00*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13*a*	3.00/3.10	4.15/4.25*a*
St. Louis	White Oak	2.94		3.65	
	Red Oak	2.84	3.49*a*	3.52	4.51*a*
	Sap Pine or Cypress	3.31*a*		4.27	
San Francisco	Douglas Fir	2.20*e*	3.25*af*	2.92*bf*	4.30*eaf*
Montreal	Birch or Maple	h	h	h	h

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over. 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over. 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot. Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta							$27.78	$27.78	$19.00	$17.50	$17.50
Baltimore	$180.00	$191.00	$358.00	$406.00	$530.00	$605.00	37.00*k*	42.00*k*	30.00	20.60	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*ff*	28.50*gg*	26.37	17.10	.....
Boston	193.00†	203.00†	392.00†	383.25†	.....	.....	33.75*p*	36.76*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.00*j*	46.00*j*	26.00*j*	24.25*j*	.....
Cleveland	149.00**	156.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.00*cc*	32.50*cc*	32.00	32.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*ep*	.....	.....	32.00*ep*	36.00	37.00*bbe*	28.00*bbe*	38.00*bbde*
Montreal	150.00*eq*	162.50*ss*	300.00*ss*	.....	.....	.....	26.50	38.50	34.80	32.50	24.60*ss*
New Orleans	170.00	170.00	310.00	.....	.....	.....	31.00	.....	.....	29.00	20.00
New York	138.70*h*	147.90*h*	203.40*eh*	221.90*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*q*	25.00	23.00	2.97*m*
St. Louis	138.00*ee*	158.50*ee*	313.00*ee*	313.00*ee*	351.00*ee*	.....	40.00*bd*	36.25*s*	.....	65*aaa*	1.10*aaspes*
San Francisco	156.85*s**	177.10*s**	235.30*bdds**	.....	.....	.....	37.00	.....	26.35	26.35	2.62*m*
Seattle	175.00*ee*	190.00*ee*	.....	190.00*eew*	.....	.....	39.00*s*	40.00*s*	37.50*ahh*	1.50*#*	3.90*mhh*

† F.o.b. yard, Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site, N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. # Per 60 lb. sack, no incr. ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were truck delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$21.80	$32.925	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	21.55	32.55	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	21.80	32.925	3.90	3.40	.....	2.80	2.75	2.75	.....	40.50*ee*
Boston	21.55	32.55	.....	.....	.....	2.89*gg*	2.79*gg*	2.79*gg*	.47*g*	42.00*gg*
Chicago	21.55	32.55	.....	.....	.....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	21.55	32.55	.....	.....	.....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	21.55	32.55	2.94*pqqA*	3.37*qqB*	2.80*qqC*	2.50‡*q*	2.50‡*o*	2.50‡*o*	.36‡*y*	40.00‡*kk*
Dallas	21.80	33.30	.....	4.05	.....	3.50*q*	3.75*o*	4.35*o*	.38	46.00
Denver	22.05	33.05	3.07	5.15	2.87	3.25*o*	2.40*o*	2.40*o*	.43*ff*	42.00
Detroit	21.55	32.55	2.35	3.40	2.50	2.50	2.50*f*	2.50	.51	40.00
Kansas City	21.55	32.67	.....	2.71*ps*	2.65	2.39	2.43*o*	2.43*o*	.313	48.00
Los Angeles	21.55	32.80	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	21.55	28.55/32.67	.....	.....	.....	2.50*kdd*	2.50*kdd*	2.50*kdd*	.34*idd*	37.00*r*
Montreal	.....	20.70	3.75*t*	4.20*t*	4.62*t*	3.80*t*	3.85*tf*	3.85*tf*	3.00*kt*	3.15*kt*
New York	21.55	32.55	3.45*y*	.....	.....	2.50	2.50*o*	2.50*o*	.34*z*	37.00
Philadelphia	21.55	32.55	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	21.55	32.55	2.45	2.55	2.20	2.90	2.90*o*	2.90*o*	.39	42.00
St. Louis	21.55	32.55	.....	.....	.....	2.50	2.50*h*	2.50*h*	.36*y*	38.00
San Francisco	21.55	32.80	2.40	3.40	.....	2.95	4.00*aa*	.....	.49	.....
Seattle	21.55	33.05	2.51*m*	2.67*m*	.....	3.58*mqee*	3.05*hmee*	.....	.59*mee*	52.00*jmee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-494A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll, 65 lb. *i* Net carload lot prices, Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* Per 60-lb. *o* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 468A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.75	$2.20	$2.335	$2.25	$2.50	$2.50	$2.75	$1.05	$1.05
Baltimore	3.20*r*	2.58	2.90	2.60-2.80	2.75	2.75	2.50	1.49	1.49
Birmingham	2.75	2.125	2.42	2.06	2.42	2.50	2.50	1.10	1.20
Boston	2.888	2.475	2.75	2.80	2.97	2.80	2.695	1.815	1.815
Chicago	3.25*k*	2.70	2.80	2.65	2.96*n*	2.91*n*	2.75	2.05*m*	2.05*m*
Cincinnati	2.90	2.475	2.665	1.825-2.85	2.67	2.70	2.64	1.65	1.65
Cleveland	3.00	2.825*d*	2.825	2.70	2.825	2.825	2.825	2.10	2.10
Dallas	3.4375*t*	2.3375	2.50	2.475	3.4.37*t*	2.625	2.6125	1.20	1.35
Denver	3.00	2.35	2.35	2.48	3.00	2.65	2.65	1.575	1.575
Detroit	2.85	2.60	2.95*m*	2.80	3.005*l*	2.85	2.75*m*	1.90	1.90
Kansas City	2.86	2.365	2.53	2.365-2.61	3.025	2.66	2.625	1.73	1.73
Los Angeles	3.00	2.35	2.50	2.30	3.125	2.625	2.625	1.75	1.75
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71*n*	2.55	1.67	1.67
New Orleans	2.70	2.06	2.45	2.325	2.375	2.50	2.45	1.10	1.10
New York	3.548*e*	3.096*n*	3.348*n*	3.348*n*	3.599*qr*	3.456*aa*	3.286*bp*	1.90	1.90
Philadelphia	3.465	2.65	3.140	2.65-2.95	3.075*k*	3.28-3.53*u*	2.85*e*	1.51	1.81
Pittsburgh	3.25	2.75	2.75	2.825	2.75	2.75	2.80	1.70	1.70
St. Louis	3.09*e*	2.75	2.75	2.75	3.00	2.887*e*	2.625	1.77	1.77
San Francisco	3.256	2.45	2.70	2.41	3.125	2.75	2.75	1.70	1.70
Seattle	3.30	2.42	2.57	2.50	3.00	2.65	2.75	1.97	2.00
Montreal*	1.75	1.55	1.65	1.45	1.75	1.65	1.70	1.09	1.03

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. * Cost of living bonus now included in basic wage. *e* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.45 bonus and housing + 5¢ vacation fund. *s* Incl. 3½% welfare. *j* Incl. 9¢ hr. welfare. *k* Incl. 7½ ¢ hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢ hr. welfare ins. fund. *n* Incl. 6¢ hr. welfare fund. *o* Inc. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 4% welfare and pension fund and 4 % vacation fund. *u* Incl. 1% welfare fund. *v* Incl. 10¢ welfare fund.

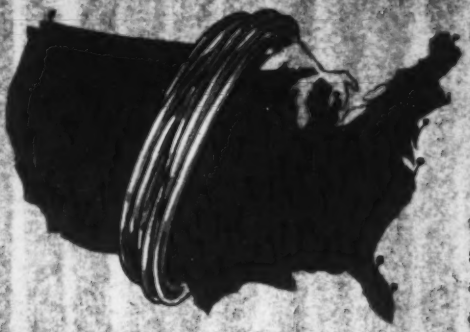
MEXICO CITY PRICES

In Pesos, F.o.b. City		Oct.'51	Nov.'51
Common Wages—Building (8 hr. day)	av. per hr.	.75*	.75*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75*	.75*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.88*	1.88*
Bricklayers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25*	1.25*
Struct. Steel Shapes			
3" 15" x 12 meters	per metric ton	1,111.01	1111.01
Reinf. Steel, Corr. Rods			
½" x 11 meters	per ton	1,261.51	1261.51
⅝" x 11 meters	per ton	1,251.15	1251.13
¾" x 11 meters	per ton	1,240.75	1240.75
⅞" x 11 meters	per ton	1,230.37	1230.37
1" x 11 meters	per ton	1,230.37	1230.37
1" x 11 meters	per ton	1,230.37	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45.00	45.00
Rose Gravel	per tr. load	40.00	41.60
Cement, Std. Port. (Tolteca)	per ton	145.00	145.00
Lumber			
Mex. 3rd Class Pine	per M ft.	1000.00	1000.00
1st Class Pine	per M ft.	1400.00	1400.00
2nd Class Pine	per M ft.	1100.00	1100.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers) $2.751. **ENR Common Average:** $1.651

You can always find a wholesaler



Within your easy reach there is a wholesaler willing to supply the materials you need and also provide helpful advice and cooperation to carry on your work.

Because many of the things you normally carry are in short supply and you are finding it difficult to meet the demands of your customers, it should be quite apparent that a closer relationship with your wholesaler can prove advantageous.

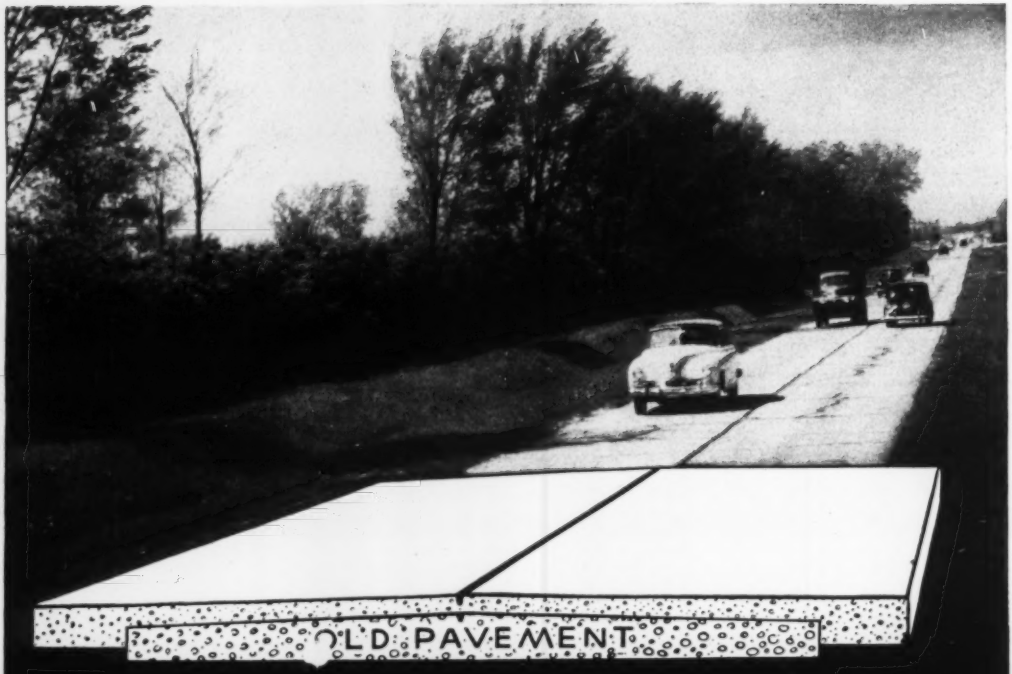
As you know, your wholesaler is identified with many trade associations. (You have probably seen their emblems on his stationery or advertisements.) You benefit indirectly through these contacts, for he can pass on to you the information about all the new developments, and thereby help you also to keep abreast of the times.

Under today's extraordinary conditions—with the need for things being greater than the available supply—attention to maintenance must be intensified in order to prolong the life of the materials and equipment now in service.

Materials that must be replaced should be of high quality to keep maintenance requirements at a minimum. That refers to Wolverine tube, too. If you install Wolverine, you can be sure of long service and minimum maintenance.

WOLVERINE TUBE DIVISION, Calumet & Hecla Consolidated Copper Company, Inc., Manufacturers of seamless, nonferrous tubing, 1457 Central Ave., Detroit 9, Mich. Plants in Detroit, Mich. and Decatur, Ala.

BUY FROM YOUR WHOLESALER



CONCRETE RESURFACING

gives old pavements new life

MANY PAVEMENTS designed during the early days of motor transportation are no longer adequate for today's increased volume and weight of traffic. Traffic today needs stronger, wider pavements, with grades, curves and sight distances adjusted so as to permit higher speeds while providing greater safety.

Many old concrete pavements have served long and well and have earned their cost many times over. Most of these roads do not need replacing nearly as much as they need strengthening, widening and resurfacing.

This modernization can best be done with concrete. The photo-diagram above shows how old concrete pavements can be made stronger, wider and safer with concrete resurfacing. This results in a far stronger and safer pavement and utilizes the original highway investment.

Concrete resurfacing gives *all* the advantages of new concrete pavement: uniformly high skid resistance, wet or dry; low maintenance cost; long years of service; greater safety at night due to concrete's high light reflectance.

Write today for free bulletin, *"Concrete Resurfacing for Old Pavements."* Distribution is limited to the United States and Canada.

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Dept. A12a-17, 33 West Grand Ave. • Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager ***J. A. MAHONEY, Reports*** ***M. R. ROESSLER, Statistics***

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Md., Andrews Air Force Base**—READINESS APRON—B.A. after Dec. 3.—U. S. Eng., First and Douglas Sts., N.W., Wash. 25, D. C., readiness apron and connecting taxiways, Eng. 49-080-52-15-19. CD 10/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **U. S. Eng.,** 80 Lafayette St., New York 13, N. Y., cancelled bids to have been opened Dec. 20, airfield facilities at Sampson Air Force Base, SAMPSON, N. Y. Est. $1,000,000-$1,500,000. CD 11/19.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

High Welding Co., James and Water Sts., Lancaster, Pa., LB $153,822, repair and remodel steel truss bridge 0.25 mi. T. R. 68 across Allegheny River, Armstrong and Clarion Counties.

A. C. Hack & Sons, Lightstreet Rd., Bloomsburg, Pa., LB $63,855, construct reinf.-con. bridge 0.37 mi. across Cummings Creek and bit. surf. Leg. Rt. 58046, Tioga Co.;

Altoona Constr. Corp., 516 Hart St., Hollidaysburg, Pa., LB $469,847, 1.29 mi. continuous plate girder bridge, c. conc. pavement, reconstruct base with bit. surf. east of Blairsville, in vicinity of Grafton, T. R. 119, Indiana Co.;

Brown, Davis & White, Box 203, Lebanon, Pa., LB $299,888, one 1-beam bridge 20 ft. wide with bit. surf. and reinf.-con. pavement 22 ft. wide, 0.48 mi., T. R. 6, 155, McKean Co. CD 11/2.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

F. D. Kessler, Inc., Northumberland, Pa., LB $106,168, 0.81 mi. c. conc. pavement 24 ft. wide and widen. existing pavement to 24 ft. with bit. surf. on both old and new north of Hepburnville, Lycoming Co.; LB $173,520, 1.90 mi. Pennsylvania R. R. relocation, 1.90 mi. grade, railroad bed 50 ft. and variable in width and bit. surf. Leg. Rt. 41006, Lycoming Co.;

H. B. Sproul Constr. Co., 222 W. Olive St., Scranton, Pa., LB $101,438, bit. surf. 3.63 mi. from 24 to 44 ft., T. R. 6, Lackawanna Co.;

John H. Swanger, Inc., P. O. Box 1214, Lancaster, Pa., LB $488,575, bit. surf. 4.36 mi., and 5 reinf.-con. bridges, Leg. Rt. 275, Juniata Co.;

Fyock & Reed, R. D. 3, Stoystown, Pa., LB $196,859, gravel surf. with metal plate arch 5.77 mi. Leg. Rt. 24002, between Belltown and Hallton, Elk Co.;

The Ray F. Yount Co., Inc., P. O. Box 101, Kittanning, Pa., LB $379,895, widen existing pavement extend 2 reinf.-con. bridges, and bit. surf. 3.02 mi., T. R. 119, from Indiana-White Twp. line north, Indiana Co.;

Charles H. Fry Constr. Co., 1902 Cherry St., Erie, Pa., LB $564,715, widen existing pavement with concrete base, extend 3 reinf.-con. structures and bit. surf. 2.85 mi., T. R. 20, Erie Co. Bids Nov. 21. CD 11/2.

▲ **Buckley & Co.,** 1317 S. Juniper St., Phila., Pa., CA. $2,259,350, Market St. subway extens., PHILA., PA. Dpt. City Transit, City Hall Annex, Phila., Pa. Bids Nov. 7. CD 11/15, under LB.

C & T Constr. Co., Brick St., Collingswood, N. J., CA. $597,088, Contr. 1, primary sewage treatment plant, RIDLEY PARK, PA. Central Delaware County Auth., Springfield, Pa. Bids Oct. 17. CD 11/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **National Constructors, Inc.,** 9303 Sutphin Blvd., Jamaica, N. Y., Separate Contracts $5,000,000 RESIDENTIAL DEVELOPMENT, MOORESTOWN, N. J. Alwin Cassens, 116-55 Queens Blvd., Forest Hills, N. Y., archts.

▲ **Byrne Organization,** 2607 Connecticut Ave., N. W., Wash. D. C. terminated $1,154,000 contract to construct county office, Jefferson and South Perry St. with Montgomery County, ROCKVILLE, MD. Contractor claims long delay in procuring steel constitutes a default by County. Montgomery Co., Rockville, Md. Owner will re-advertise. CD 11/2/50, under CA.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **TENNESSEE**—B.A. 12/12—Bureau P. Rds., Dpt. Commerce,Gatlinburg,

Sevier Co.—stone masonry retaining walls and reconstruct roadway 0.708 mi. Proj. 1A13, Great Smoky Mountains National Park.

Fla., Flagler Beach—B.A. 12/20—Town, Town Hall, Contr. 1, water supply sys.; Contr. 2 water supply wells, pumps, piping and equipment; Contr. 3, subaqueous crossing of Intracoastal Waterway for water supply lines; Contr. 4, 75,000 gal. elevated steel tank. Plans deposit $15 each. Bostwick, Inc. 211 Broadway, Daytona Beach, Fla., engr. CD 7/25.

† **Ga., Atlanta**—BOILER—B.A. 12/20—U. S. Eng., Post Office Bldg., Savannah, installing boiler and accessories with 27,000 sq. ft. radiation, also constr. 40x75 ft. steel trestle shelter over Coal Trestle at Atlanta General Depot, Eng. 09-133-52-2o. Plans deposit $10.

† **Fla., Tampa**—COLD STORAGE BLDG.—B.A. 12/21—U. S. Eng., P.O. Box 4970, Jacksonville, cold storage bldg. MacDill Air Force Base. Plans deposit $5. Bid date changed. CD 11/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Leo T. Barber, Moultrie, Ga., LB $730,964, 120.3 mi. rural distr. lines, in five counties, SOUTH CAROLINA Central Electric Power Co-operative, Inc., P. M. Brown, pres., 2G Cornell Arms Bldg., Columbus, S. C. Bids Nov. 20. CD 11/8.

SOUTH CAROLINA—State Hy. Dpt., Hotel Jefferson, Columbia.

Norfolk Dredging Co., Campostella Wharf, Norfolk, Va., CA $398,431, Alt. 1, 0.904 mi. embankment on approaches to proposed Ashley River Bridge between North Charleston and U.S. 17, F-2571 (1), Charleston Co. Bids Nov. 19. CD 11/1.

▲ **SOUTH CAROLINA**—State Hy. Dpt., Hotel Jefferson, Columbia.

Blankenship Bros., 2217 S. Tryon St., Charlotte, N. C., CA $173,649, S. C. Docket No. 28,292, F.A. Proj. No. S-610 (1), Kershaw Co.; CA $187,533, S.C. Dockets Nos. 29,286, 29,287, Parts 1 and 2, 29,288 and 29,289, F.A. Proj. Nos. S-570 (1), S-574 (1), S-575 (1) and S-580 (1), Lancaster Co.; CA $247,-918, S.C. Dockets Nos. 43,231, 43,240, 43,242, 43,244, Parts 1 and 2, S-296 and 43,300, F.A. Proj. Nos. S-573 (1), Parts 1 and 2, S-348 (2) and S-256, (2), Sumter Co.;

Sloan Constr. Co., Inc., Peoples Natl. Bank Bldg., Greenville, S. C., CA $88,656, S.C. Dockets Nos. 30,262 and 30,282, F.A. Proj. Nos. S-611 (1) and S-460 (1), Laurens Co.; CA $80,264, S.C. Docket No. 43,275, Parts 1 and 2, F.A. Proj. No. U-2581 (1), Sumter Co.;

J. F. Cleckley & Co., Orangeburg, S. C., CA $67,059, S.C. Docket No. 16,296, F.A. Proj. No. S-525 (2), Darlington Co.; CA $84,040, S.C. Dockets Nos. 32,316, 32,319 and 32,320, F.A. Proj. Nos. S-596 (1) and S-578 (2), Lexington Co.;

Knox Bros., Inc., Thomson, Ga., CA $115,751, Alts. 2 and 4, S.C. Dockets Nos. 15,280, Part 1, 2, 3 and 4, and 15,283, Parts 1, 2, 3, and 4, Colleton Co.; CA $68,696, S.C. Dockets Nos. 27,252, 27,253 and 27,-255, Alts 2 and 4, Jasper Co.;

Carolina Contg. Co., 1000 Adeline St., Columbia, S. C., CA $115,503, Alt. 2, S.C. Dockets Nos. 21,300, 21,-325, F.A. Proj. Nos. S-525 (1) and S-599 (1), Florence Co.;

Reeves Bros. Constr. Co., Inc., Easley, S. C., CA $63,-864, Alts. 2 and 4, S.C. Dockets Nos. 4,360 and 4,365, Anderson Co.

Fox Constr. Co. Inc., Lexington, S. C., CA $156,825, Alt. 2, S.C. Dockets Nos. 2,310, 2,311, 2,312, 2,314, 2,315, 2,316 and 2,318 Aiken Co.;

Kraft & Newell, Florence, S. C., CA $83,764, Alt. 2, S.C. Docket No. 34,267, Parts 1 and 2, Marion Co. Grand total $1,533,523. Bids Nov. 13. CD 11/1.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

Campbell Constr. Co., Inc., foot of Millan St., Shreveport, La., LB $296,238, Morganza Floodway approaches, S.P. 52-03-13 and 52-02-16, Pointe Coupee Parish;

Keller Constr. Corp., 7400 Palm St. New Orleans, La., LB $308,002, repairing Caminada Bay Bridge, State Rte. 620, S.P. 64-01-12, Jefferson Parish. Bids Nov. 14. CD 10/24.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

E. A. Caldwell, Reymond Bldg., Baton Rouge, La., LB $201,283, grav. base course or alternate soil cement base course, bit. surf. tr. 6,402 mi., Grand Prairie-Ville Platte Hy., State Rte. 119, S.P. 380-01-04, Evangeline Parish. Bids Nov. 14. CD 10/24.

J. H. Jenkins, Inc., 5163 Choctaw Dr., Baton Rouge, La., CA $588,591, street paving, VILLE PLATTE, LA., Town and Road Dist. 6, Evangeline Parish, Ville Platte, La. CD 11/20, under LB.

KENTUCKY—State Hy. Dpt., Frankfort.

W. M. Hooper, Caneyville, Ky., LB $76,835, bridge, traffic bound limestone approaches 0.943 mi., Columbia-Knifley Rd., S 208 (2), SP 1-490, Adair Co. Bids Nov. 16. CD 10/31.

KENTUCKY—State Hy. Dpt., Frankfort.

John Treitz & Son, 741 Franklin St., Louisville, Ky., LB $100,172, traffic bound limestone 3.615 mi., Chestnut Grove-Todds Point-Prison Farm Rd., S 293 (1), RS 106-266, Shelby Co.;

Harry O. Wyse, 8014a E. High St., Lexington, Ky., LB $118,632, traffic bound limestone 2.94 mi. New Salem-Frances Rd., S 231 (1), RS 28-426, Crittenden Co.;

G. & R. Coal Co., Robbins, Tenn., LB $73,291, reconstr. local bank or creek grav. 3.35 mi. Ferris Creek Rd., RS 29-347, 85-364, Cumberland and Metcalfe Counties;

Lyons & Breeden, Rogersville, Tenn., LB $112,824, reconstr. traffic bound limestone 3.645 mi. East Fork Creek-Emberton Rd., RS 86-454, Monroe Co.;

Derby Constr. Co. Inc., 3000 Crittenden Dr., Louisville, Ky., LB $97,962, traffic bound limestone 2.06 mi. Lawrenceburg-Versailles Rd., F 208 (3), SP 3-71, Anderson Co.;

McDade & McDade, Fulton, Ky., LB $68,410, reconstr. local bank or creek grav. 3.22o mi. Union Church Rd., Rs 38-607, 38-627, Fulton Co. Bids Nov. 16o. CD 10/31.

BUILDINGS

LOW BIDS AND CONTRACTS

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C., LB $539,890, HOUSING, Proj. No. NC 10-11, Seymour Johnson Field, GOLDSBORO, N. C. Eastern Carolina Regional Housing Auth., Goldsboro, N. C. Bids Nov. 20. Edwards & McKimmon, 743 W. Johnson St., Raleigh, and W. B. Griffin, Edwards Bldg., Goldsboro, N. C., archts. Bids Nov. 20.

Skinner & Ruddock, King St. exten., Charleston, S. C., CA $983,500, Tuberculosis SANATORIUM, CHARLESTON, S. C. Charleston County Council, The Center, Charleston, S. C. Bids Nov. 8. CD 11/13, under LB.

Bailey-Brazell Constr. Co., P. O. Box 386, Greenville, S. C., LB $810,918, 120 HOUSING units, LAURENS, S. C. Laurens Housing Auth., Laurens, S. C. Bids Nov. 19. CD 11/14.

▲ **Jonathon Woodner Co.,** Ring Bldg., Wash., D. C., Owner Builds, $1,000,000, 125 HOMES, ATLANTA, GA.

▲ **Algernon Blair,** P. O. box 749, Montgomery, Ala., CA, $1,000,000 construct, manage and finance 225 HOUSING units, for Dpt. Air Force, EGLIN AIR FORCE BASE, FLA. Eglin Homes, c/o contractor.

▲† **Derby Constr. Co.,** 4504 Poplar Level Rd., Louisville, Ky. and **Perkins Constr. Co.,** Frankfort, Ky., LB $2,835,382, two 120x1,200 ft., stee beam, concrete block WAREHOUSES, Lexington Signal Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids No. 22. CD 11/1.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wis., Madison**—RAILROAD—B.A. About 12/14—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, rehabilitation approx. 2 mi. railroad track at Truax Air Force Base, Inv. No. ENG 45-013-52-7. CD 6/27.

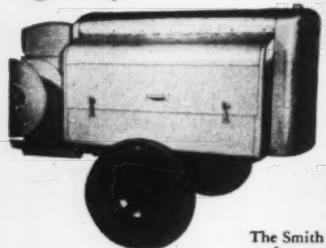
Ill., Arthur—B.A. 1/9—Village, Village Hall, WW imprvs. and sewer extens. (1) 25,350 ft. water main piping from 2 to 8-in. incl. valves, hydrants, appurtenances (2) 2,450 ft. 8-in. sewer pipe, incl. manholes, appurtenances (3) constr. well house, complete with pumping equip., appurtenances (4) constr. pressure iron removal and softening plant, incl. pumping equipment, filters softeners, aerator, storage reservoir and appurtenances. Plans deposit $20. W. A. Irwin, Tuscola, Ill., engr. CD 6/26.

† **Mich., Kinross**—AIR FIELD—Bids Asked—U. S. Eng., 1900 Cadillac Tower, 65 Cadillac Square, Detroit, Zone 26, develop runway exten., grading, paving, taxiways, aprons and runways as Air Force Auxiliary Field, Eng. 20-064-52-19. CD 7/3.

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—HOUSING—B.A. 12/13—Chicago Housing Auth., 608 S. Dearborn St., 150-unit 15 story, brick apartment, Lake Park and Oakwood Sts., $1,500,-

Compressed Air to handle most jobs For Less!



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AIR COMPRESSOR

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Also the SMITH 70-P AIR COMPRESSOR

GORDON SMITH & CO. 430 COLLEGE STREET BOWLING GREEN, KY.

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*Trade Mrks. Reg. U. S. Pat. Off.

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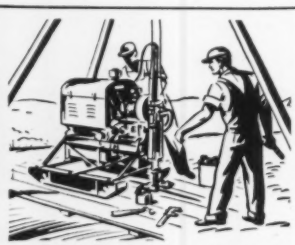

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SPRAGUE & HENWOOD, Inc.
Dept. E, SCRANTON 2, PA.
New York - Philadelphia - Pittsburgh

000. Shaw, Metz & Dolio, 208 S. LaSalle St., archts. CD 8/9.

Ill., Madison—HOUSING—B.A. 12/18—Madison County Housing Auth., D. F. draner, exec. dir., 3 and Haller Sts., East Alton, Project. Ill. 15-3, consisting 13 two story bldgs. incl. 84 dwelling units and 1 story management and maintenance bldg. $800,000. Plans deposit $50. Friedman, Alschuler & Sincere and Ernest A. Grunsfeld, 3 W. Jackson Blvd., Chicago, Ill., archts. and engrs. CD 9/4, under LB.

SOON LETS CONTRACT—BUILDINGS

Mich., Detroit—CHURCH—First Lutheran Parish, c/o Robert J. West, archt., 512 United Artists Bldg., soon lets contract 1 story, bimnt., brick, stone church, Cadieux and Cornwall Sts. $300,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., T. J. Kauer, dir., Columbus, **V. N. Holderman & Sons**, 297 S. High St., Columbus, O. LB. $219,361, est. $257,950, b. conc. sects. State Rte. 161 in Blendon Twp., Franklin Co.;

Murray Const. Co., Waverly, LB $63,199, est. $79,400, bit. mix 0.331 mi. State Rte. 73 in Liberty Twp., Highland Co.;

Red Eagle Corp., Columbus, O., LB $109,951, est. $117,630, b. conc. 0.691 mi. State Rte. 725 in Gratis Twp., Preble Co.;

Baker & Hickey Co., 85 E. Gay St., Columbus, O., LB $1,464,437, c. conc., wid'n. road and construct steel girder bridge over Scioto River, U.S. Rte. 23 in Chillicothe and Scioto Twp., Ross Co.;

Kelley & Meyer Co., 1211 Gibson St., Youngstown, O., LB $1,004,442, est. $823,700, imprv. sects. State Rte. 46 and construct bridge over Mill Creek, in village of Columbiana, Columbiana Co. and Beaver Twp., Mahoning Co.;

General Asphalt Paving Co., Kahler Bldg., Canton, O., LB $1,044,626, est. $998,500, imprv. sects. incl. paving and b. conc. wid'n. and building slab bridge over branch of Mahoning River, U.S. Rte. 62, city of Alliance and Washington Twp., Stark Co., Smith Twp., Mahoning Co., and Knox Twp., Columbiana Co.;

Manix Bros. Co., Greenville, O., LB $82,525, est. $88,500 bit. road mix surf. paving U.S. Rte. 36 in Liberty and Neave Twps., Darke Co.;

W. J. Elliott, McConnelsville, O., LB $72,740, est. $91,200, bit. road mix 0.378 mi. State Rte. 376, Morgan Co.;

Heffner Constr. Co., Celina, O., LB $1,052,948, est. $1,123,700 b. conc. 8.481 mi. U.S. Rte. 30N in village of Crestline, Crawford Co. and Sandusky and Springfield Twps., Richland Co.

received no bids Nov. 20, b. conc. and construct concrete slab bridge over Sundary Creek 0.015 mi. State Rte. 155 in village of Corning, Perry Co. Bids Nov. 20. CD 11/12.

ILLINOIS—State Div. Hys., Springfield,

Triangle Constr. Co., 480 N. Evergreen St., Kankakee, Ill., LB. $71,587, wid'n. two hy. bridges on Ill. 13, Jackson and Perry Counties;

Culberson Constr. Co., Pana, Ill., LB $165,441 constr. 3 bridges on Ill. 13, Marion Co.;

R. W. Ford, 704 S. Market St., Marion, Ill., LB, $103,375 wid'n. 3 hy. bridges on Ill. 146, Union Co.;

G. H. Allen, 804 N. 5 St., Vincennes, Ind., LB, $79,380, wid'n. 3 highway bridges on Ill. 14 White Co. Bids Nov. 21. CD 11/12.

ILLINOIS—State Div. Hys., Springfield, rejected bids Nov. 14, c. conc. base course wid'n. Ill. 38 in Jersey Co., LB $90,703; conc. base course wid'n. 8.97 mi., Ill. 3, Madison and Jersey Counties, LB $127,455; c. conc. base course wid'n. 10.28 mi. Ill. 12 in St. Clair Co., LB, $233,374; c. conc. base course wid'n. 8.93 mi. Ill. 15, St. Clair, Clinton and Washington Counties, LB, $161,933; c. conc. course and railroad subway on U. S. 36 in Sangamon Co., LB, $294,975. CD 11/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Haig M. Boyajohn & Assoc., Inc., 990 W. Third St., Columbus, O., CA. $949,100. HEALTH and SAFETY CENTER on west bank of Scioto River, COLUMBUS, O. City, Elmer A. Keller, Service Dir., City Hall, Columbus, O. Bids Oct. 30. CD 11/9, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Nebraska**—CIRCUIT BREAKERS, etc.—B.A. 12/13—Bureau Reclamation, Dpt. Interior, P. O. Box 280, Casper, Wyo., furnish ng. del. power circuit breakers and disconnecting switches for Gering and Sidney substations addns., Transmission Div., Missouri River Basin Proj. Inv. No. 703S-224; adv. ENR 11/29.

† **Tex., Big Spring**—FIRE STATION, etc.—B.A. 12/14—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, crash and structural fire station at Big Spring Air Force Base, Approx. $100,000. CD 10/18.

†**Tex., El Paso**—GAS DISTRIBUTION—B.A. 12/17—U. S. Govt., c/o Purch & Contg. Officer, Fort Bliss, gas distr. sys. extens., Serial No. E-41-014-52-6. Approx. $60,000. CD 10/19.

† **Oklahoma**—B.A. 12/18—Bureau Reclamation, Dpt. Interior, Altus, earthwork, asphaltic membrane lining and structures, Drains A-1 "162", "E" and "F" exten., Altus 21.7 lateral wasteway, Altus Canal, Station 842 plus 13 to Station 857 plus 00 and Station 1001 plus 80 to Station 1013 plus 00—W. C. Austin Proj. Spec. No. DC-3599; adv. ENR 12/6.

Tex., Dallas—B.A. 12/18—Dallas Housing Auth., 2525 Lucas Dr., underground sanitary sewers. Plans de-

posit $50. Tatum & Quade, 2812 Fairmount St., engrs.

Tex., Dallas—B.A. 12/18—Dallas Housing Auth., 2525 Lucas Dr., area grading; asph. street paving; concrete sidewalks, $70,000. Tatum & Quade, 2812 Fairmount St., engrs.

Tex., Dallas—GAS DISTRIBUTION, etc.—B.A. 12/18—Dallas Housing Auth., 2525 Lucas Dr., gas distr. $60,000; overhead electric distr. sys. Tatum & Quade, 2812 Fairmount St., engrs.

Tex., Dallas—B.A. 12/19—Dallas Housing Auth., 2525 Lucas Dr., water sys. $38,000. Tatum & Quade, 2812 Fairmount St., engrs.

† **South Dakota**—B.A. 1/9—U. S. Eng., 1709 Jackson St., Omaha, Neb., earthwork, Stage II, Oahe Reservoir Proj. Inv. 52-48. CD 11/14.

BIDS ASKED—BUILDINGS

Tex., El Paso—HOSPITAL—B.A. 12/7—Hotel Dieu Hospital, c/o Sister Mathilde, administrator, 1014 N. Stanton St., Bid A, 4 story; Bid B 6 story; 4 to 6 story brick exterior, concrete frame hospital annex, air-conditioning, etc. $650,000-$1,000,000. Maguolo & Quick, 4908 Delmar St., St. Louis, Mo., and Percy McGhee, 1013 First Natl. Bank Bldg., archts. CD 11/28/49.

SOON LETS CONTRACT—BUILDINGS

▲ **Kan., Kansas City**—PLANT—Fairbanks Morse & Co., 600 S. Michigan St., Chicago, Ill., soon lets contract two 1 and 3 story, 252x702 ft., 292x422 ft. buildings for diesel pump and engine mfg. plant on 40 acre site, Carlisle Rd., west of here $6,000,000, Lester B. Knight & Assoc., 600 W. Jackson St., Chicago, Ill., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Denton Telephone Corp., Denton, Tex., Force Account, $90,000. rural telephone pole lines, Denton Co., TEXAS. CD 6/27.

West Texas Rural Telephone Co-operative, Hereford, Tex. Force Account, $135,000. addnl. rural telephone pole lines, Hereford Co., TEXAS. CD 10/22.

Thomas & Ratliff, Rogers, Tex., CA, $70,910, 58½ mi. street and seal-coating in Alice and Jim Wells Co. ALICE, TEX. Jim Wells Co., Alice, Tex. CD 10/30.

City, Beaumont, Tex., Own Forces. $75,000. addnl. unit sanitary sewers; $75,000 storm sewers under streets to be paved, BEAUMONT, TEX. R. C. Black, city engr. CD 6/26/47.

City, Bellaire, Tex., Own Forces. $65,000. park imprvs., incl. 2 rest rooms, BELLAIRE, TEX. Bids Oct. 24 rejected. CD 10/15.

City, Harlingen, Tex., Force Account, $75,000. sanitary sewer unit, HARLINGEN, TEX. CD 5/8/50.

† **U. S. Eng.,** 606 Santa Fe Bldg., Galveston, Tex. cancelled bids to have been opened Dec. 6, 80,000 sq. ft. frame type constr., Type 2 warehouse, San Antonio Air Material Area, Inv. No. Eng. 41-243-52-31, KELLY AIR FORCE BASE, TEX. Approx. $500,000. CD 11/7.

Pure Oil Co., c/o Smiths Bluff, Port Arthur, Tex., Own Forces, Approx. $40,000. water lines, PORT ARTHUR, TEX. CD 11/8.

Pure Oil Co., c/o Smiths Bluff, Port Arthur, Tex., Own Forces. $67,500. site earthwork, grading, drainage, PORT ARTHUR, TEX. CD 11/8.

Pure Oil Co., c/o Smiths Bluff, Port Arthur, Tex. Own Forces. Approx. $60,000. gas lines; Approx. $88,000. steam lines, services; Approx. $80,000 electric lighting sys. extens., PORT ARTHUR, TEX. Grand total $228,000. CD 11/8.

▲† **T. C. Bateson Constr. Co.,** Irwin-Keasler Bldg., Dallas, Tex., LB $1,211,700. design, fabrication and erection of maintenance and operations facilities, Inv. No. ENG 34-066-52-19, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 20. CD 11/14.

† **Parker-Schram Co.,** Builders Exchange Bldg., Portland, Ore. LB $837,390. 79 mi. transmission line from Hungry Horse Dam to Hot Springs, Flathead and Sanders Counties, MONTANA. Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids Nov. 13. CD 11/2.

BUILDINGS

LOW BIDS AND CONTRACTS

Bd. Educ., Independence, Mo. rejected bids Oct. 23, Benton SCHOOL, INDEPENDENCE, MO. LB $326,060. CD 11/8, under LB.

† **Peterson, Garbi & Joseph, Inc.,** 123 E. 9 St., North Little Rock, Ark., LB, $976,400, erecting BARRACKS at Naval Ammunition Depot, Spec. 32573, SHUMAKER, ARK. Dpt. Navy Ordnance Bureau, 18 St. and Constitution Ave. N. W., Wash., 25, D. C. Bids Nov. 14. CD 10/24.

City, Gerald Hartman, mgr., Colby, Kan. Own Forces. $160,000. 1,960 hp. Fairbanks Morse & Co. engine, dual fuel and generating 1,360 KW. POWER PLANT, COLBY, KAN. Ernest V. Snell, c/o owner, city engr. CD 11/12.

Boyker & Vest, Bellaire, Tex., Owner Builds. $325,000. construct number of HOUSING units in extens. of Sect. 4, Post Oak Terrace, BELLAIRE, TEX. CD 9/14.

Inwood Constr. Co., 5151 Northwest Hy., Dallas, Tex., CA $969,605. 106-bed new East HOSPITAL wing, DALLAS, TEX. Methodist Hospital of Dallas, 301 Colorado St., Dallas, Tex., Bids Oct. 25. CD 11/13, under LB.

S. N. Adams & Assoc., 4001 Westheimer St., Houston, Tex. Owner Builds. Approx. $300,000. 15 DWELLINGS, various locations, HOUSTON, TEX. CD 3/21.

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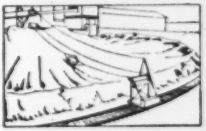
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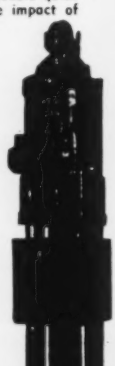

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Brace & Carruth, 706 Garden Oaks St., Houston, Tex., Own Forces. $390,000. 30 DWELLINGS, HOUSTON, TEX. F. Herbert Caldwell, 4122 Glenbrook Ct., Houston, Tex., archt. CD 4/13/50.

▲ **Foster Wheeler Corp.**, Shell Bldg., Houston, Tex., CA. $10,830,000, Benzene PLANT.

Procon, Inc., c/o Universal Oil Products Co., 310 S. Michigan St., Chicago, Ill., CA. Approx. $1,500,000. PLATFORMING REFINERY UNIT, at Deer Park, HOUSTON, TEX. Shell Oil Co., Shell Bldg., Houston, Tex. CD 8/21, under LB.

Townsend Constr. Co., 3525 Westheimer Rd., Houston, Tex. Owner Builds. Approx. $322,000. 27 DWELLINGS, fronting on Post Oak Rd., HOUSTON, TEX. CD 10/3.

Bank Building & Equipment Corp. of America, 906 Sidney St., St. Louis, Mo., CA. Approx. $525,000. design and construct 3 story (ultimately 10 story) bsmnt., OFFICE and BANK bldg., MIDLAND, TEX. CD 5/10/51, under LB.

Raymond Thomason, Sr., Abilene, Tex., Own Forces. Approx. $300,000. 32 frame, asbestos siding DWELLINGS, concrete slab fdn., MIDLAND, TEX. CD 9/10.

▲ **Tex-Harvey Gasoline Co.**, Midland, Tex., Own Forces. Approx. $4,750,000. GASOLINE PLANT, near MIDLAND, TEX. CD 9/13.

▲ **Chemical Constr. Corp.**, 488 Madison Ave., New York, N. Y., CA. Approx. $12,000,000. design and construct CHEMICAL PLANT, near PASADENA, TEX. Heyden Chemical Corp., 393 7th Ave., New York, N. Y.

Faulkner Building Co., West Bldg., Houston, Tex., Owner Builds. $320,000. 32 DWELLINGS, PASADENA, TEX. CD 10/16.

Faulkner & Wisdom Building Corp., West Bldg., Houston, Tex., CA. $345,000. 35 DWELLINGS, PASADENA, TEX. Pasadena Investment Co., West Bldg., Houston, Tex. Knostman & Webster, 2017 W. Gray St., Houston, Tex., archts.

E. J. Burke & Sons, 4220 S. Zarzamora St., San Antonio, Tex., Owner Builds. Approx. $350,000. 50 DWELLINGS units, SAN ANTONIO, TEX. CD 11/3/49.

Phil S. Hardy Constr. Co., Municipal Bldg., Texarkana, Tex., LB $166,558, PLANT, TEXARKANA, TEX. Texarkana Coca-Cola Bottling Co., Texarkana, Tex. Bids Nov. 17. CD 11/13.

A. H. Electric Co., 3409 Agnes St., Corpus Christi, Tex., LB $122,207. electric work on new electric POWER PLANT, some outside line work, VICTORIA, TEX. Central Power & Light Co., 120 Chaparral St., Corpus Christi, Tex. Bids Nov. 16. CD 11/13.

▲ **Tex., Waco**—HOUSING—U. S. Eng., 606 Santa Fe Bldg., Galveston, construct, manage and finance 500 housing units at Connally Air Force Base. Low Bidder refused job. Second bidder withdrew. Negotiating with G. & H. Co. & Assoc., 4801 Lemmon St., Dallas, who were original (Aug. 30) third low bidders at $3,940,000. CD 9/10, under CA.

▲ **Farnsworth & Chambers, Inc.**, P. O. Box 74, Houston 1, Tex., CA. $2,839,231. 240x600 ft., concrete, concrete block TECHNICAL SHOP, clearing, grading, paving, site imprvs. and utilities, Inv. 291-52-3, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Ralph M. Parsons, 617 S. Olive S., Los Angeles, Calif., archt. Bids Nov. 9, awarded Nov. 16. CD 11/20, under LB.

▲† **Robert E. McKee**, Box 1706, Santa Fe, N. M., LB $2,078,700, 2 story, full bsmnt., approx. 5,800 sq. ft. MEDICAL RESEARCH LABORATORY, outside utilities, parking area and sidewalks, Inv. 291-52-7, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M., Bids Nov. 20. CD 10/23.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Oxnard**—UTILITIES, etc.—B.A. 12/17—U. S. Eng., 751 S. Figueroa St., Los Angeles, utilities and street paving at Oxnard Air Force Base, Eng. 04-353-52-12, $500,000. Plans deposit $25.

† **Wash., Tacoma** — DISTRIBUTION FACILITIES — B.A. 12/19—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, exten. electrical distr. facilities, Inv. 52-109. Plans deposit $10. CD 11/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,

Le Grand Johnson, Logan, Utah, CA, $219,648 constr. 10.52 mi. Blackfoot-Atomic Energy site road, Bingham Co. Awarded Nov. 20. CD 1/22/46.

† **UTAH**—Bureau P. Rds., Dpt. Commerce, 473 Federal Bldg., Ogden.

Floyd S. Whiting, Murray, Utah, CA, $156,560. construct 1.876 mi. bit. surfaced roadway on Zion-Bryer Canyon Natl. Parks approach road in Dixie Natl. Forest, Kane Co. Bids Oct. 30, B. W. Matteson, c/o owner, div. engr.

† **Pittsburgh-Des Moines Steel Co.**, Box 329, Santa Clara, Calif., CA. Approx. $45,000. 100,000 gal. elevated steel water tank, DOG Area, Dugway Proving Ground, TOOELE, UTAH. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids Oct. 18. CD 10/10.

† **Pipeline Constr. Co.**, 2391 Main St., Riverside, Calif. LB $204,193, 9 mi. pipe to carry water from well at Nevada Test site to Camp Mercury, LAS VEGAS, NEV. U. S. Atomic Energy Comn., P. O. Box 5400, Albuquerque, N. M. Bids Nov. 15.

WASHINGTON—State Hy. Dpt., Olympia, cancelled bids to have been opened Nov. 20, railroad overcrossing on Hy. 1 at Marysville, Snohomish Co. CD 11/7.

WASHINGTON—State Hy. Dpt., Olympia,

T. Scalzo, 3211 Airport Way, Seattle, Wash. CA $274,232, constr. new Agate Pass-Lofall Highway, Kitsap Co. Bids Nov. 20, awarded Nov. 20. CD 11/7.

Paine-Gallucci Inc., 1521 S. Grant St., Tacoma, Wash., LB, $137,400, c.i. water mains in Local Imprvt. Dist. 5185, between S. 64 and 76 Sts., Pine St. to Puget Sound Ave., TACOMA, WASH. City, City Hall, Tacoma, Wash. CD 8/16.

▲ **Steve P. Rados**, 2975 San Fernando Rd., Los Angeles, Calif., CA, $712,175, Eagle Rock-Hollywood Conduit, Unit I.

United Concrete Pipe Corp., Bonita and Stewart Aves., Baldwin Park, Calif., CA, $2,504,781, Eagle Rock Hollywood Conduit Unit II—concrete pipe alternate LOS ANGELES, CALIF. Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Nov. 5. CD 11/8, under LB.

S. B. Lazarevitch, 10024 S. Figueroa St., Los Angeles, Calif., CA, $79,324, 4500 ft. 54-in. rein.-con. Joint Outfall "D" Unit 3 Trunk Sewer, Torrance, LOS ANGELES, CALIF. Los Angeles Co. Sanitation Dist. 2, 2020 Beverly Blvd., Los Angeles, Calif. Bids Nov. 14. CD 9/19.

BUILDINGS

LOW BIDS AND CONTRACTS

Hedeen Constr. Co., 1404 N. 143 St., Seattle, Wash., CA $486,855, general contract. HIGH SCHOOL, BETHEL, WASH. School Dist. 403, Bethel, Wash. Bids Oct. 18. CD 10/23, under LB.

Henry George & Son, Hutton Bldg., Spokane, Wash., CA, $656,813, est. $500,000; 850,000 bu. GRAIN ELEVATOR Addn, LONGVIEW, WASH. Port of Longview, Wash. Bids Oct. 23. CD 10/29, under LB.

▲ **Kaiser Aluminum & Chemical Co.**, 1924 Broadway, Oakland, Calif., Day Labor, INDUSTRIAL BLDG., service extensions $1,000,000; ex en ELECTRIC SERVICE BLDG., $100,000; WAREHOUSE $75,000, STORAGE $75,000, MAINTENANCE SHOP $35,000, MEAD, WASH. Grand total $1,285,000. CD 11/15.

Louis C. Dunn Co., 3101 Wilshire Blvd., Los Angeles, Calif., LB, $612,500, est. $550,000 yard development, paving, fencing, conduits, etc. EL SEGUNDO, CALIF. The Douglas Aircraft Co., Inc., 827 Lapham St., El Segundo, Calif. Bids Nov. 13. CD 11/8.

Ole Hague, 4102 Cauto Dr., Los Angeles, Calif., CA, $120,241, est. $100,000, substructure for STEAM PLANT, GLENDALE, CALIF. City, 613 E. Broadway, Glendale, Calif. Bids Nov. 1, awarded Nov. 8. CD 10/22.

▲ **Swinerton & Walberg**, 225 Bush St., San Francisco, Calif., CA, $1,247,000, WAREHOUSE, HAYWARD, CALIF. Hunts Foods, Inc., Hayward, Calif. Bids Oct. 30, awarded Nov. 20. CD 10/12.

Thos. C. Bowles, 8941 Santa Monica Blvd., Los Angeles, Calif., CA, $313,100, 56 frame, stucco DWELLINGS, Loma Verde and Covello Sts., LOS ANGELES, CALIF. Griffin Constr. Co., 8941 Santa Monica Blvd., Los Angeles, Calif. Jack Roberts, Manhattan Beach, Calif., engr.

Tilden Homes, Inc., Riverside, Calif., Owner Builds, $575,500, 75 frame, stucco DWELLINGS, POMONA, CALIF. Builders Drafting Service, 3625 Magnolia Blvd., Burbank, Calif., engr.

▲ **Ray E. Frasure**, 4423 S. Wilton St., Los Angeles, Calif., and **Claude T. Lindsay**, 564 Market St., San Francisco, Calif., CA, $5,300,000, construct, manage and finance, 644 HOUSING units, Serial 138—80004, March Air Force Base, RIVERSIDE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Aug. 6, awarded Nov. 20. CD 8/14, under LB.

▲ **Wm. Simpson Constr. Co.**, 816 W. 5 St., Los Angeles, Calif., CA, $1,500,000, 2 story research LABORATORY and AUDITORIUM, SANTA MONICA, CALIF. The Rand Corp., 1500 4 St., Santa Monica, Calif. S. B. Barnes, 2234 Beverly Blvd., Los Angeles, Calif., engr. H. Roy Kelley, 3723-A Wilshire Blvd., Los Angeles, Calif., archt. CD 5/8.

Alliance Constr. Co., 308 Monterey Rd., Pasadena, Calif., CA, $879,890, 2 story, rein.-con. SCIENCE BLDG., SANTA MONICA, CALIF., Santa Monica City High School Dist., 1333 6 St., Santa Monica, Calif. Bids Nov. 7, awarded Nov. 14. CD 11/13, under LB.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Societe d'Entreprises Generales Ltee**, 81 Second Ave., Amos, Que., Approx. $1,000,000, asph. surf. runway for jet aircraft at airport, EARLTON JUNCTION, ONT. Dpt. Transports, Ottawa, Ont.

R. A. Blyth Constr. Co., 7 St. Andrews Gardens, Toronto, Ont., CA, Approx. $120,607, harbor imprvs., breakwater at Marien Garage, HAMILTON ONT. Dpt. P. Wks. Hunter Bldg., Ottawa, Ont. Bids Nov. 14. CD 10/31.

▲ **Perini, Pitts & Assocs.**, 67 Yonge St., Toronto, Ont., CA, Total $50,000,000. Sect. 5, of hydraulic tunnel, 45 ft. finished diameter, 6,225 ft. long and shaft, NIAGARA FALLS, ONT. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. Bids Oct. 16, awarded 11/21. CD 9/21.

BUILDINGS

LOW BIDS AND CONTRACTS

Shoquist Wicklund Constr., 9955 78 Ave., Edmonton, Alta., CA, Approx. $600,000, 88 HOUSING units, EDMONTON, ALTA. Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man. Bids Oct. 22. CD 10/16.

Shoquist Wickland Constr., 9955 78 Ave., Edmonton, Alta. CA, Approx. $860,000, 123 HOUSING units,

(Continued on page 106)

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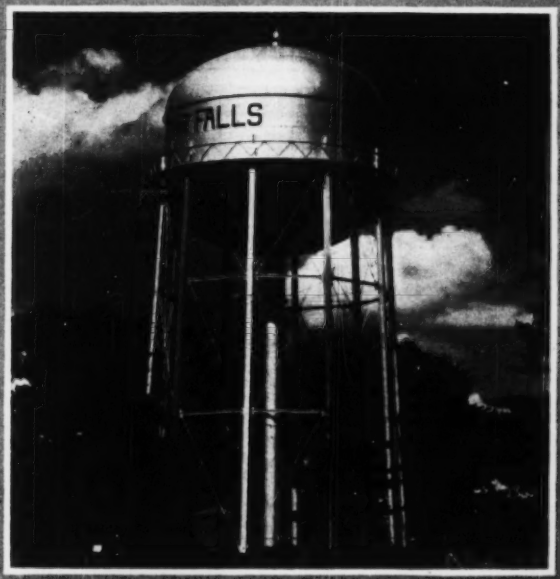

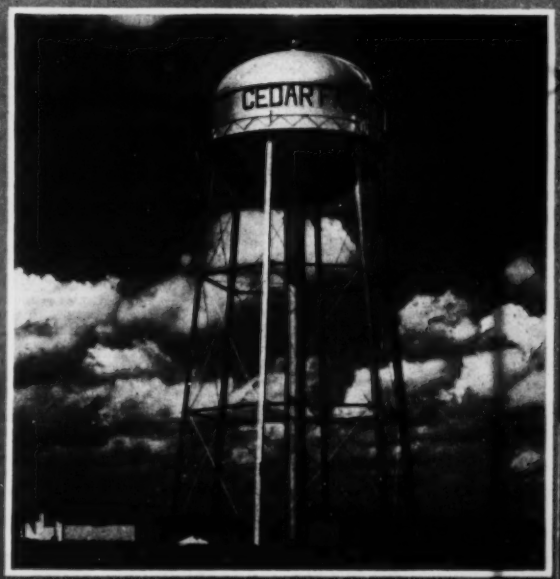

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(Continued from page 104)

PENHOLD, ALTA. Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man. Bids Oct. 22. CD 10/16.

Defence Constr. Ltd., 441 Queen's Quay W., Toronto 2B, Ont., cancelled bids to have been opened Nov. 20. 40-vehicle GARAGE AND TANK HANGAR No. 2, PETAWAWA, ONT. Will re-advertise. CD 11/2.

Soules Constr. Ltd., 880 Bay St., Toronto, Ont., CA Approx. $200,000, 2 story, 145x246 ft., steel brick, FACTORY, TORONTO, ONT. Westeel Products Ltd., 28 Atlantic Ave., Toronto, Ont. Bids Nov. 7. CD 10/23.

Woodall Bros., 1711 Walker Rd., Windsor, Ont., CA, Approx. $115,000, PLANT ALTERATIONS, WINDSOR, ONT. Ford Motor Co. of Canada Ltd., 2780 Sandwich St. E., Windsor, Ont. CD 2/21/50.

Dominion Silica Corp., Ltd., 610 St. James St. W., Montreal, Que., Day Labor, $600,000, 1 story, 75x200 ft., rein.-con., structural steel PLANT and 1 story, 30x50 ft., concrete, brick, steel OFFICE, St. Joseph St., LACHINE, QUE.

▲ **J. L. E. Price & Co. Ltd.**, 680 Sherbrooke St. W., Montreal, Que., CA $1,207,375, 5 story, bsmnt. 28x50 ft. south extension and 50x150 ft. McConnell Wing, NEUROLOGICAL INSTITUTE, MONTREAL, QUE. Mc Gill University, 805 W. Sherbooke St., Montreal, Que. Bids Sept. 28. CD 9/14.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Ga., Carrollton**—City, WW and sanitary sewer imprvs. $1,000,000.

Ill., Georgetown—City, water works, $100,000. Paul J. Kleiser & Assocs., 671 Tippecanoe St., Terre Haute, Ind., consult. engrs.

▲ **Ky., Louisville**—Louisville Water Co., S. Third St., 60 in. concrete main from Crescent Hill Plant, First Sect. from Crescent Hill plant to Bardstown Rd. $1,200,000; expansion water purification at Crescent Hill plant, $1,200,000. M. Payne, c/o owner, engr.

La., New Roads—City, voted $550,000 bonds, water mains, sanitary sewers and imprvs. electric distr. sys. CD 10/17.

Mo., Richmond—City, $250,000 revenue bond issue Dec. 15, water sys. imprvs. incl. treatment plant, water softener, exten. and repairs to distr. lines, E. T. Archer Engineers Co., Railway Exchange Bldg., Kansas City, Mo., consult. engr. CD 9/12.

N. C., Kernersville—Town, John Flynt, mayor, water supply lake and pipe line, $200,000.

O., Celina—Bd. Comrs. Mercer Co., Court House, 2½ mi. 6 and 8 in. pipe, 4 in. laterals water main extens. east along Road 29-Highland Park, $190,000. R. L. Woolpert, 360 W. 1st St., Dayton, consult. engr.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., WW, $16,800,000. J. G. Rollins, Pub. Wks. Engr.

Wash., Geneva—Water Dist., 3, Bellingham, water system in area south of Bellingham, $100,000. Parker, Hill & Ingman, 1728 E. Madison St., Seattle, consult. engrs. CD 11/15.

SEWERS, WASTE DISPOSAL

▲ **Ark., Hot Springs**—City, Floyd A. Housley, mayor, bond election not held Nov. 6 sanitary sewage treatment plant auxiliaries, appurtenances, $3,600,000. Ralph W. Delaney, Ada, Okla., consult. engr. CD 9/25.

▲ **Calif., Los Angeles**—Los Angeles Co., Hall of Records, sewers Glen Ave., $212,000, Marathon Rd., $152,000, Santa Rosa Ave., $235,000, Alberta St., $115,000, all foregoing in Altadena; Loma Ave., $74,600, Sunny Slope Dr., $101,000, Hallowell Ave., $91,600; Wolley St., $76,800, Lemon Ave., $92,000, Arcadia Ave., $120,800, Longden Ave., $143,000, Angelus Ave., $86,500, all foregoing in Temple City; Strozier Ave., $122,000, Daleview Ave., $73,800, Lambert Ave., $118,200, Bradmead St., $137,500, all foregoing in El Monte; Cathryn Ave., $68,200, in Garvey; Orangehorpe Ave., $64,100, 193 St., $73,700, both in Artesia; Inez St., $110,000, Tedford Dr., $116,500, Rainier Ave., $84,400, Sunshine Ave., $109,300, all foregoing in Norwalk; Milton St., $108,200, in Torrance. F. W. Fox, county surv. and engr.

La., Gretna—Jefferson Parish Sewerage Dist. 2, Gretna, voted $700,000 bonds, sanitary sewer imprvs. CD 10/3.

Md., Annapolis—City, Municipal Bldg., Contr. 6, water and sewer extensions, $150,000, Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, engrs. CD 2/7/45.

▲ **Minn., Crystal**—Village, B. E. Scott, clk., Nov. 15, defeated proposal to authorize constr. sanitary sewerage sys., $1,881,185 Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, consult. engrs. CD 11/5.

S. C., Union—City, voted bonds, sanitary sewer imprvs. $600,000. CD 11/8.

Tex., Arlington—City, storm sewers, $75,000; sanitary sewers, $75,000.

Wash., Ronald—Ronald Sewer Dist., Richmond Highlands, sewerage sys., $100,000. Parker, Hill & Ingman, 1728 E. Madison St., Seattle, consult. engrs. CD 11/15.

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Wash., Seattle—City, County-City Bldg., Zone 4. sanitary sewers in area between Fremont and Meridian Aves., N. 85 to 90 Sts. $106,808. R. W. Finke, city engr. CD 3/21/46.

Wash., Soap Lake—City, City Hall, sewerage sys. $300,000. Parker, Hill & Ingman, 1720 E. Madison St., Seattle, Wash., consult. engrs. CD 11/15.

BRIDGES

▲ **D. C., Wash.**—Distr. Comrs., District Bldg., Zone 25. 12,000 ft. long deck type, girder, East Capitol Street Bridge, East Capitol St. over Anacostia River. $11,000,000. J. E. Greiner Co., 1201 S. Paul St., Baltimore, Md., engr. Jas. R. Edmunds, Jr., 130 W. Hamilton St., Baltimore, Md., and Harbeson, Hough, Livingston & Larson, 117 S. 17 St., Phila., Pa., assoc. consult. archts. CD 3/1.

Ky., Louisville—City of Louisville and Commonwealth of Kentucky, overpass of L. & N. R.R. Co. at Brook St. and Eastern Parkway. $750,000. W. W. Sanders, city engr. CD 11/10/50.

▲ **Md., Baltimore**—City, Bureau Water Supply, 506 Municipal Bldg., 4 bridges part of Patapsco Development. Approx. $2,500,000. J. E. Greiner Co., 1201 St. Paul St., Zone 2, engr. J. S. Strohmeyer, c/o owner, engr. CD 2/2, under Water Supply.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Springfield and East Wilbraham—Springfield-By-Pass, Rte. 20 start at East Wilbraham north of Springfield and Chicopee, across Connecticut River, connect with Rte. 5 in West Springfield. $25,000,000.

N. Y., New York—Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave. Zone 21, bridge over Bronx River in New York Botanical Garden, Bronx Park west of Bronx River Parkway opposite Allerton Ave., Bronx Boro, Contr. No. X-2-450N. $250,000.

▲ **Texas**—State Hy. Dpt., Austin. U. S. Eng., 606 Santa Fe Bldg., Galveston and Brazoria Co., Angleton.
Brazoria Co.—2,190 ft. concrete, steel type, bridge, 72 ft. above mean tide, over Intracoastal Canal at Surfside (Freeport P.O.) $1,250,000.

Tex., Dallas—City, City Hall, Main and Harwood Sts. and State Hy. Dpt., Austin, underpass on Good St. at T. & P. crossing, asph. paving from Elm to Swiss Sts. $458,942. J. G. Rollins, P. Wks. Engr. for City.

STREETS AND ROADS

N. Y., Ancram—Town, 24.12 mi. roads. $158,840.
N. Y., Austerlitz—Town, 20.8 mi. roads. $145,600.
N. Y., Bangor—Town, 18.8 mi. roads. $138,200.
N. Y., Brownville—Town, 21.25 mi. roads. $212,500.
N. Y., Burke—Town, 27.9 mi. roads. $214,550.
N. Y., Champion—Town, 19.85 mi. roads. $143,200.
N. Y., Chateaugay—Town, 20 mi. roads $140,000.
N. Y., Claverack—Town, 18.78 mi. roads. $131,460.
N. Y., Constable—Town, 18.7 mi. roads. $134,050.
N. Y., Copake—Town, 27.04 mi. roads. $189,280.
N. Y., Dickinson—Town, 16.1 mi. roads. $139,150.
N. Y., Ellisburg—Town, 16.55 mi. road. $149,840.
N. Y., Fort Covington—Town, 21.2 mi. roads. $178,550.
N. Y., Gallatin—Town, 14.83 mi. roads. $103,810.
N. Y., Ghent—Town, 28.59 mi. roads. $200,130.
N. Y., Hillsdale—Town, 16.18 mi. roads. $113,260.
N. Y., Orleans—Town, 15.25 mi. roads. $106,750.
N. Y., Taghkanic—Town, 17.38 mi. roads. $121,660.
N. Y., Theresa—Town, 9.85 mi. roads. $102,950.
Tex., Arlington—City, street imprvs., paving. $150,000.
▲ **Tex., Brownsville**—Cameron Co. c/o Comrs. Court, Court House, cancelled Dec. 8 bond election road constr. imprvs., rehabilitation, surf. Precincts 1, 2, 3 and 4. $750,000 each. James C. Harris, c/o owner, engr. CD 11/14.
▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., street paving. $7,705,000. J. G. Rollins, Pub. Wks. Eng. CD 12/1/48.
▲ **Tex., Fort Worth**—City, c/o W. O. Jones, mgr. and Tarrant Co., c/o Judge G. Brown, extending N. E. 12 St. into Riverside. $1,000,000. Freese & Nichols, 407 Danciger Bldg., consult engrs. CD 9/17.
▲ **Tex., Henderson**—Rusk Co., c/o Comrs. Court, Court House, defeated bonds, general road imprvs., Precinct 1, $502,395; Precinct 2, $547,740; Precinct 3, $401,675; Precinct 4, $538,611. (Correction—status). CD 11/13.
WASHINGTON—State Hy. Dpt., Olympia.
Okanogan Co.—highway from Omak to Riverside, $225,000. W. A. Bugge, state hy dir.

EARTHWORK, WATERWAYS

La., Convent—East St. James Parish Gravity Drainage Dist., Court House, drainage excav. $305,000.
Miss., Holly Springs—Northwest Mississippi Consolidated Drainage Dist., c/o Smith & Hurdle, attys., Holly Springs, drainage excav. $105,000.
▲† **Texas**—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, construction work in 1952 on Whitney Dam Proj., Hill and Bosque Counties. $3,800,000. CD 8/25/49.

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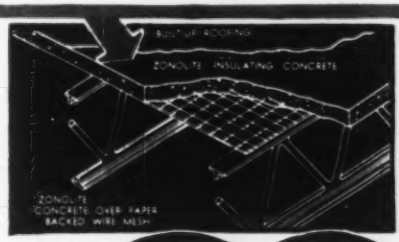

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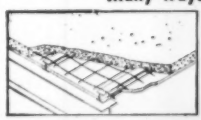

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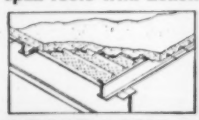

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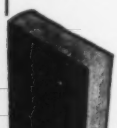

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AIRPORTS

▲† **Colo., Denver**—QUARTERS, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., BOQ and mess barracks, at Lowry Air Force Base. $12,000,000.

▲† **Kan., Topeka**—AIRPORT IMPRVS.—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. air base expansion, incl. runways, barracks, family housing, mess halls, officers quarters, warehouse, utilities, etc. at Forbes Air Force Base. $20,000,000. Capitol Engineering Co., 1241 Topeka Blvd., composed of T. W. Williamson, National Bank of Topeka, V. H. Loebsack & Assoc., 1243 Topeka Blvd., Servis & van Doren, 409 Crawford Bldg., and Stuart Hazard, Capitol Federal Bldg., Topeka, engrs. CD 7/2.

▲ **Mo., Grandview**—AIRPORT IMPRVS.—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., housing, medical units, storage, shops, post exchange, etc., $5,149,000; hangars and shops, $713,000; base pavements, lengthening runways, parking ramps, aprons, $1,052,000; headquarters, other buildings, $1,425,000; utilities, $1,624,000, at Grandview Airport. CD 10/16.

▲† **N. Y., Sampson**—SERVICE CENTER—U. S. Eng., 80 Lafayette St., New York 13, N. Y., plans by Reisner & Urbahn, 654 Madison Ave., New York, Zone 21, airmen's service center and utilities at Sampson Air Force Base. $750,000. CD 10/15.

N. D., Bismarck—AIRPORT—City, airport resurf. and repairing runways, taxiway and apron. $160,000.

Okla., Ardmore—AIR BASE—U. S. Eng., Box 61, Tulsa, grading expansion Ardmore Air Base. $100,000. Rex Collins, McAlester, consult. engr. CD 6/27.

▲ **Tex., Dallas**—AIRPORT—City, City Hall, Main and Harwood Sts., Love Field expansion. $3,800,000. J. G. Rollins, P. Wks. Engr. CD 6/29/50.

† **Alaska**—GYMNASIUM and INDOOR TRAINING CENTER—U. S. Eng., (APO 942 c/o PM, Seattle, Wash.) Anchorage, plans by P. Bellischi, 2040 S. W. Jefferson St., Portland, Ore., gymnasium and indoor training center, Eielson Air Base. $978,500. CD 11/27.

▲ **N. S., Halifax**—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., apartment blocks, 232 units for army and 36 units in Grosebrook area at R. C. A. F. $3,000,000. P. J. Mangan, c/o owner, engr.

LATIN AMERICA

▲ **Chile, Cautin**—National Electricity Bd., Santiago, plans 2 units of 20,000 kw each, hydro-electric plant. $4,500,000.

Mexico, Mexico City—Bobinadores Unidos Ribera de San Coume, 138, plans electric transformers factory. $250,000.

Mexico, Mexico City—Harinas de Maiz, S. A. Ramon Guzman, 114, plans corn products factory. $250,000.

Mexico, Mexico City—Vidrioflex, S. A. Gante, 11-401-03 Mexico City, plans flexible glass factory. $400,000.

Mexico, Santa Maria Insurgentes—Bujias de Mexico, S. A. Calle 56 Norte, 55, plans cases for motors factory. $250,000.

FOREIGN

Ceylon—Government of Ceylon, Colombo, plans 730 ft. concrete dam at Castlereagh, pipe lines, electrical and mechanical plant, transmission lines for hydro-electric project at Watawala. Experienced foreign contractors are invited. Bids will be taken soon. CD 3/10/49.

Pakistan, Karachi—Karachi Port Trust, Karachi, plans remodeling 13 cargo berths, dredging, rail and road approaches, transit sheds. Total cost $13,000,000. First contract for four 550 ft. berths $2,800,000. Established firms wishing to bid are invited to send qualifications to owner.

PUBLIC BUILDINGS

Calif., Azusa—GYMNASIUM, etc.—Azusa-Glendora Union High School Dist., voted $850,000 bonds, gymnasium, etc. CD 10/4.

Calif., Newport Beach—SCHOOLS—Newport Beach Elementary School Dist., Newport Beach, $985,000 bond election Jan. 18, schools.

Idaho, Emmett—SCHOOL—School Bd., Emmett, defeated bonds, high shcool, $450,000. CD 10/22.

Ind., Clarksville—SCHOOL—Bd. School Comrs., Jeffersonville, plans by Roy E. Phelps, Inc., 853 K of P Bldg., Indianapolis, high school, $550,000.

Ind., Hammond—SCHOOL—School City of Hammond, 5935 Hohman St., school, Columbia and Woodmar Sts., $500,000. CD 11/20/45.

Ind., Huntington—SCHOOL—Bd. School Trustees, High School Bldg., Huntington, plans by Lennox & Matthews, 644 E. Maple Rd. Blvd., Indianapolis, 2 story, bsmnt., 88x116 ft., brick, school addn. $400,000.

▲ **Ia., Davenport**—COURT HOUSE—Scott Co., $2,500,000 bond election in January, court house, $4,000,000. CD 11/15/50.

▲ **Kan., Independence**—SCHOOL—Bd. Educ. School Dist. 5, $1,250,000 bond election Nov. 27, school imprvs.

Kan., Olathe—SCHOOL—Bd. Educ. Dist. 44, c/o Sam B. Bartlett, clk., Prairie Village, Olathe, plans by

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Marshall & Brown, 1016 Baltimore St., Kansas City 6, Mo., school, 75 and Bellnder Rds., $600,000. CD 11/3.

Ky., Elizabethtown—HOSPITAL—Hardin County Fiscal Court, plans by Otis & Grimes, Tyler Bldg., Louisville, 75-bed war memorial hospital, $400,000 bonds voted. CD 11/15.

▲† La., Baton Rouge—DEPOT—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., plans by Goodman & Miller Architects Engineers, 125 N. Blvd., car block shed, railroad tracks, inflammable storage, boxing and crating shop, Post Eng. carpenter shop and storage warehouse at Baton Rouge Engineer Depot. Total $2,500,000.

La., Napoleonville—SCHOOL—Assumption Parish School Bd., Napoleonville, voted $550,000 bonds, school improv.

La., Welsh—SCHOOL—Welsh School Dist. 6, Welsh, voted $600,000 bonds, high school.

Me., Old Town—SCHOOL—City School Dpt., Helen Hunt School, Brunswick St., plans by Olonzo J. Harriman, 292 Court St., Auburn, high school. $500,000.

▲ Md., Baltimore — SCHOOLS — City, Bureau Bldg. Constr., 410 Municipal Bldg., plans by Ross, Walton & Hoffstetter, 2111 N. Charles St., Baltimore, 3 story, brick, concrete, steel East Baltimore Colored Elementary School, Biddle, Chase, Washington and Wolfe Sts., $1,500,000; plans by Gaudreau & Gaudreau, 330 N. Charles St., Zone 1, 1, 2 and 3 story, 370x385 ft., brick block steel Cherry Hill Colored Junior High School, Cherry Hill Rd. and Seamon Ave., $1,600,000, J. L. Faisant & Assoc., 21 W. 25 St., struct. engr., Egli & Gompf, Inc., 1019 N. Calvert St., Zone 2, mech. engr. R. E. L. Williams, c/o owner, bldg. constr. engr. CD 1/27/44.

▲† Md., Baltimore—BUILDINGS—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Zone 3, plans by Lawrence A. Menefee, 347 N. Charles St., rehabilitation Buildings 1, 253 and 267, No. DA 18-020-Eng 328, Fort Holabird, $1,300,000. J. L. Faisant & Assoc., Inc., 21 W. 25 St., and H. Walton Redmile & Assoc., 2017 Maryland Ave., engrs.

Md., Poolesville—SCHOOL—Montgomery Co. Bd. Educ., Rockville, plans by Ronald Senseman, 327 Carroll St., Takoma River, Wash., D. C., 1 story, bsmnt., brick, cinder block Poolesville High School, $500,000. R. E. Carpenter, Court House, Rockville, co. engr.

Md., Towson—SCHOOL—Bd. Comrs. Baltimore Co., Court House, plans by Smith & Veale, 2127 N. Charles St., Baltimore, 1 story, brick, concrete block, cinder block Rosedale School addn. $400,000.

▲ Mass., Westwood—SCHOOL—Town, School Bldg. Comn., Westwood, plans by Coletti Bros., 687 Boylston St., Boston, high school, $1,300,000.

▲ Minn., New Brighton—SCHOOLS—Bd. Educ., Consolidated School Dist. 38, Ramsey Co., R. R. Reed, supt., voted $2,500,000 bonds Nov. 13, Junior-Senior High School in Arden Hills, grade school in New Brighton, incl. purchase of sites. CD 11/5.

Miss., Aberdeen—HOUSING—Aberdeen Housing Auth., Aberdeen, plans by Turner & Dean, 221 N. President St., Jackson, 60 housing units, $450,000.

▲ Miss., Tupelo—PLANT—Monroe Co. plans by Feemster Connett & Cook, Tupelo, textile plant for Textron, Inc. $2,600,000.

Miss., Yazoo City—HOUSING—Yazoo City Housing Auth., Yazoo City, plans by Turner & Dean, 221 N. President St., Jackson, 72 housing units, $550,000.

N. Y., East Rockaway—SCHOOL—Lynbrook Bd. Educ. Dist. 20, Lynbrook, plans by Frederick Weidersum, 240 Rockaway Ave., Valley Stream, school, Pepperidge Rd., south of Main St. $400,000.

N. C., Kenansville—HOSPITAL, etc.—Duplin Co., Kenansville, voted $250,000 bonds, 50-bed hospital, 25-bed nurses' home. $950,000.

S. D., Sanator—HOSPITAL—State Bd., Pierre, plans by Ewing & Forette, Rapid City, tubercular hospital. $600,000.

▲ S. D., Sioux Falls—SCHOOLS—Bd. Educ., 107 High School Bldg., plans by Perkins & McWayne, 320 Paulton Bldg., school, $300,000; plans by Harold Spitznagel, 816 Natl. Bank of South Dakota Bldg., high school, $1,000,000. CD 11/14.

▲ Tenn., Elizabethton — PAPER MILL — City, voted bonds, paper mill for Monadnock Paper Mills, Inc. $20,000,000. CD 11/2.

Tex., Corpus Christi—HOSPITAL—Nueces Co., Court House, voted bonds, tuberculosis hospital addn. to existing Hilltop Sanitarium. $450,000. Ben E. Christian, 921 Ocean Dr. and Robert L. Vogler, 225 Oleander St., engrs.-archts. CD 10/30.

▲ Tex., Dallas—STORAGE and REPAIR GARAGE—City, City Hall, Main and Harwood Sts., municipal storage and repair garage. $1,000,000. J. G. Rollins, Pub. Wks. Engr. CD 6/26/50.

▲† Tex., Fort Worth—WAREHOUSES—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, 200x1,200 ft. permanent type warehouse, $1,750,000; 200x800 ft. permanent type warehouse $1,200,000, both for Quartermaster Depot.

Tex., Hughes Springs—HOUSING—Hughes Springs Housing Auth., L. D. Harmon, chn., Hughes Springs, 100 unit rural non-farm housing. $600,000.

▲ Tex., Kingsville—HOUSING—Kingsville Housing Auth., Kingsville, plans by Boese & Harkrider, engrs. and archts. Texas & Pacific Bldg., Fort Worth; 200 low cost housing units $1,500,000. CD 11/13.

▲ Tex., Laredo—SCHOOLS—Laredo Independent School Dist., Laredo, voted bonds, Job No. 1, elementary school, $300,000; Job. No. 2, elementary school, $300,000; Job No. 3, elementary school, $300,000; Job No. 4, Junior-Senior high school unit $325,000; Job No. 5, school remodeling, $325,000.

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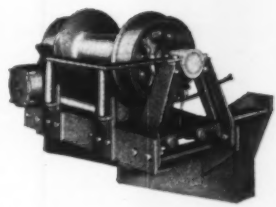

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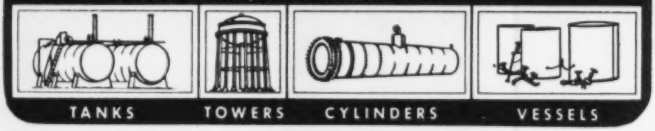

MY ROCKER HAS ALWAYS BEEN MOST EFFICIENT TOO — SEE PAGE 9

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Tex., San Antonio—HEALTH DEPT.—City, City Hall, Military Plaza, health dept. bldg. $500,000.

▲ **Tex., San Antonio**—SCHOOLS—San Antonio Independent School Dist., Lavaca and Water Sts., plans by Phelps & DeWees & Simmons, 1501 Majestic Bldg., Junior High School, Barkley Pl. and Arizona St., $850,000; school Capitol and Thorain Pl., $475,000. CD 8/22.

Va., Berryville—HIGH SCHOOL—Clarke Co. Bd. Educ., Berryville, plans by Dixon & Norman, 1103 E. Main St. Richmond, high school. $775,000.

Wash., Chehalis—GYMNASIUM, etc.—School Dist. 302 Chehalis, voted bonds, gymnasium and music bldg. for high school, $566,000. Mallis & De Hart, Lyon Bldg., Seattle, Zone 4, archts. CD 10/22.

▲† **Wash., Richland**—HOUSING—Atomic Energy Comn., Richland, 500 rental housing units, $4,000,000

▲ **Wis., Sheboygan**—INFIRMARY, etc.—Sheboygan Co., Sheboygan raising funds infirmary and hospital, $1,200,000.

Newfoundland, St. John's—PLANT—Dpt. Economic Development, St. John's cold storage plant in Patrie's Bay, $600,000.

Ont., Midland—HOSPITAL UNIT—St. Andrew's Hospital Bd., Midland, plans by Rountthwaite & Fairfield, 22 Harbord St., Toronto, 46-bed hospital unit. Approx. $500,000.

▲ **Ont., Pembroke**—HOSPITAL—General Hospital, 697 MacKay St., 250-bed hospital, $1,500,000.

▲ **Ont., Toronto**—LIBRARY—University of Toronto, Simcoe Hall, library to be known as Sigmund Samuel Library, $2,000,000. Col. A. D. LePau, c/o owner, supt. engr. CD 1/20/47.

▲ **Sask., Saskatoon**—HOSPITAL—Municipality, ratepayers vote approval, 75-bed hospital addn., Seventh St. $1,320,000. Govan & Assocs., 515 Jarvis St., Toronto, Ont., archts. CD 9/28.

COMMERCIAL BUILDINGS

▲ **Ill., Waukegan**—HOSPITAL, etc.—Victory Memorial Hospital, 1324 N. Sheridan St., plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Zone 3, hospital addn., alterations, $1,000,000.

▲ **Ind., Indianapolis**—SUPERMARKET—Joseph Guidon, Tenth and Arlington Sts., supermarket $1,000,000.

▲ **Kan., Topeka**—HOSPITAL—Menninger Foundation, David Neiswanger, pres., 829 Madison Ave., New York, N. Y., plans by Griest & Ekdahl, New England Bldg., Topeka. Edward Stone, consult. archt., 50 E. 64 St., New York. N. Y. and Isadore Rosenfield, consult. archt., 23 W. 47 St., New York, N. Y., hospital wing, $1,250,000. CD 12/15/49.

Ky., Louisville—BUILDING—Young Men's Hebrew Assn., 729 S. Second St., plans by Joseph & Joseph archts. and engrs., Speed Bldg., building, gymnasium, athletic field, $800,000, E. R. Ronald & Assoc., 554 S. Third St., Louisville, consult. engrs.

Mass., Lowell—HOSPITAL—St. John's Hospital, Bartlett St., plans by Maginnis & Walsh, 126 Newbury St., Boston, hospital addn., alterations, $400,000. CD 11/7.

Mass., Worcester—DORMITORIES—Holy Cross, College, St., plans by Maginnis & Walsh, 126 Newbury St., Boston, 2 dormitories, $500,000. CD 10/5/45.

Neb., Lincoln—DORMITORY—Union College, H. C. Hartman, pres., 3803 S. 48 St., plans by Davis & Wilson, 225 Stuart Bldg., men's dormitory. $582,080.

▲ **N. M., Albuquerque**—HOTEL—Leo F. Corrigan Interests of Dallas, Mercantile Bank Bldg., and c/o D. F. Wallace, 3212 N. Rio Grand Blvd., 3 story hotel, incl. sun deck, outside swimming pool, roof terraces, etc. at Gibson and Ridgecrest Dr. $3,000,000.

N. Y., Brooklyn—APARTMENT—Howard McGovern, 45 Tennis Court, Zone 26, plans by Lama, Proskauer & Prober, 383 Pearl St., Zone 1, 6 story apartment, 823-47 Ocean Ave. $400,000.

▲ **N. Y., New York**—ENGINEERING CENTER—Columbia University, 115 St. and Broadway, Zone 27, 14 story engineering center, Riverside Dr. and 125 St. $22,150,000.

▲ **N. Y., New York**—SCHOOL—St. Charles Roman Catholic Church, 214 W. 141 St., Zone 30, school and community bldg., 214 W. 152 St. $1,000,000.

Tex., Farmers Branch—DWELLINGS—C. Grady Cates, Jr. & Henry C. Kersey, Farmers Branch, plans by Ned Cole, West Ave., Austin, Proj. 1, 41 frame dwellings, $300,000; Proj. 2, 45 frame, asb. siding dwellings, concrete slab fdn., $325,000; Proj. 3, 50 frame dwellings, concrete slab fdn. $350,000.

Tex., Freeport—HOUSING—Dow Chemical Co., Freeport, abandoned 100 employee housing units. $800,000. CD 7/13.

Tex., Houston—CHURCH, etc.—Most Rev. W. J. Nold, Bishop of the Diocese of Galveston, 2011 Church St., Galveston, church and parochial school, 10 acre site in Westwood add. on Stella Link Rd. $400,000.

Tex., Houston—DWELLINGS—H. I. Stahlman, trustee, 4007 Greenbriar St., 25 high-class dwellings, on acreage adjoining Afton Oaks. $650,000.

Tex., Lake Jackson—DWELLINGS—Lakewood Rental Homes, Inc., Lake Jackson, via Freeport, 50 stucco, frame dwellings, concrete slab fdn. portion of Huisache St. $400,000.

▲ **Tex., San Antonio**—HOSPITAL—Santa Rosa Hospital, W. Houston and Santa Rosa Sts., plans by Phelps & DeWees & Simmons, 1501-6 Majestic Bldg., 5 story hospital addn. $2,000,000. CD 5/31/46.

W. Va., Bridgeport—CHURCH—Bridgeport Methodist Church, Bridgeport, church. $545,679.

INDUSTRIAL BUILDINGS

▲ **Ala., Gadsden**—WAREHOUSE—Goodyear Tire & Rubber Co., Gadsden, plans by Horace Weaver, Swann Bldg., Birmingham, 400,000 sq. ft. warehouse, $1,600,000.

▲ **Ill., Oaklawn**—FACTORY—Hotpoint, Inc., 5600 W. Taylor St., Chicago 50, Ill., 1,000,000 sq. ft. factory, $25,000,000. Abell Howe Co., 53 W. Jackson St., Chicago, 4, Ill., consult. engr.

▲ **Kan., Lawrence**—PLANT—Consumers Co-operative Assn., c/o H. A. Cowden, pres., 10 and Oak Sts., Kansas City 6, Mo., Farm Chemical Assn. nitrogen fertilizer plant, $16,000,000. CD 10/17.

▲ **La., Baton Rouge**—PLANT—Kaiser Aluminum & Chemical Co., Airline Hy., plant addns. to double plant capacity.

▲ **O., Van Buren**—FACTORY—Delco Products Div. General Motors Corp., Stevens and E. 1 St., Dayton, Zone 1, factory on 306 acre area, $8,000,000.

▲ **O., Warren**—PLANT—Mullins Mfg. Corp., Salem, O., expand plant for Shell contract, $1,000,000.

▲ **Pa., Morrisville**—PLANT—Hagan Corp., Hagan Bldg., Pittsburgh, industrial plant to process and package water softening compound on 1 acre tract between Delaware Ave. and Delaware River, $1,500,000.

Tenn., Chattanooga—FREIGHT TERMINAL—East Tennessee & Western North Carolina R.R., Johnson City, plans by Hunt Carson & Assoc., James Bldg., freight terminal, $200,000.

▲ **Tenn., Lenoir**—PLANT—Firestone Tire & Rubber Co., 1200 Firestone Pkwy, Akron 17, O., mfg. plant, $5,000,000.

Tex., Austin—PLANT—Newspapers, Inc., 308 Guadalupe St., 2 story, part bsmnt. 180x200 ft., concrete, steel frame, pier and beam fdn. newspaper plant, $625,000.

▲ **Tex., Corpus Christi**—REFINERY—Taylor Refining Co., c/o G. L. Rowsey, chn. Bd. Dir., Petroleum Heat & Power Co., Poth Lane, refinery (a benzine purification unit), $3,000,000.

▲ **Tex., Texas City**—REFINERY, etc.—Pan American Refining Corp., Texas City, 30,000 bbl. capacity catalytic cracking unit, $3,750,000; revamping existing combination thermal and crude cracking units, $1,000,000; polymerization refinery unit, $1,750,000; steel tank farm storage unit, $400,000.

▲ **Newfoundland, Corner Brook**—MILL—Bowater's Newfoundland Pulp & Paper Mills Ltd., Corner Brook, mill expansion program, Approx. $10,000,000. C. J. Jeffreys, 1115 Sherbrooke St. W., Montreal, Que., engr.

Ont., Port Stanley—Imperialle Fuels Ltd., Joseph McManus, pres., 263 Bathurst St., London, 5,000,000 imperial gal. fuel oil tanks and shipyard, $500,000. CD 3/30/50.

▲ **Que., Asbestos**—PLANT—The Canadian Johns-Manville Co. Ltd., Asbestos, defibering plant, at Shipton, $6,000,000. CD 5/31/50.

Que., Lachine—PLANTS, etc.—Electric Temper & Equipment Co. of Canada Ltd., 1440 St. Catherine St. W., Montreal, 1 story L-shaped, 150x700 ft. rein.-con., structural steel plant and office, St. Joseph St., near Rockfield, $750,000.

UNCLASSIFIED

Minnesota—RURAL DISTRIBUTION LINES—Steel-Waseca Electric Co-operative, Owatonna, 18 mi. rural distr. lines, sys. imprvs., 25 mi. tie line, 16 mi. transmission lines, Steele and Waseca Counties, $365,000. CD 12/1/49.

Missouri—RURAL DISTRIBUTION LINES—Three Rivers Electric Co-operative, Linn, 61 mi. rural distr. lines, sys. imprvs., Osage Co. $335,000.

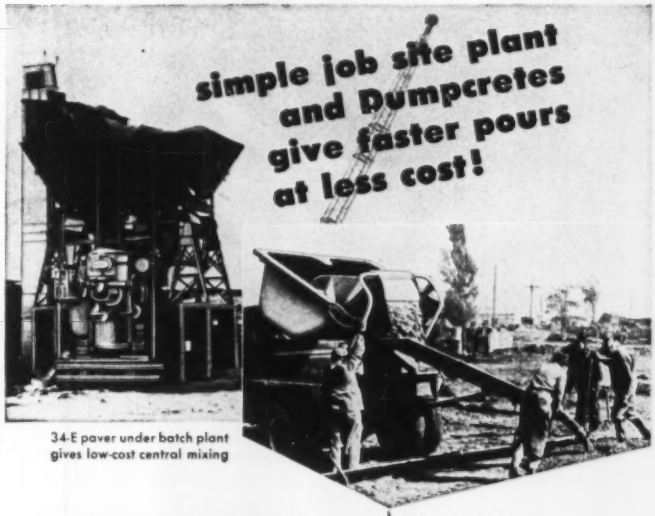
Nebraska—RURAL DISTRIBUTION LINES—North Central Nebraska Pub. Power Dist., Creighton, rural distr. lines and sys. imprvs., Knox Co. $690,000. Raymond H. Reed & Co., Columbus, consult. engrs.

▲ **N. Y., New York**—PARKS—Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., Zone 21, Contr. No. X-92-447, development park area west of Jerome Ave. and north of Deegan Blvd. exten. and Mosholu Parkway exten. in Van Cortlandt Park Contr. No. X-92-547, development park area east of Jerome Ave. and north of E. 233 St. in Van Cortlandt Park, Contr. No. X-92-647, planting in park area east of Jerome Ave. and north of E. 233 St. in Van Cortlandt Park, est. $2,000,000; Contr. No. X-92-147, reconstruct park area along Van Cortlandt Park south from Bailey Ave. to Mosholu Pkway extens. in Van Cortlandt Park, Contr. No. X-92-247, construct playground at Gun Hill Rd. and Jerome Ave. in Van Cortlandt Park, Contr. No. X-92-347, reconstruct park area around Mosholu Golf course bounded by Gun Hill Rd., Mosholu Parkway exten., Deegan Blvd. extens. and Jerome Ave. in Van Cortlandt Park, est. $1,000,000. Clarke, Rapuano & Holleran, 145 E. 32 St., Zone 16, consult. engrs. To go ahead in 1957. CD 8/3/45.

Texas—GAS PIPE LINE—St. Charles Pipe Line Co., Aransas Pass, gas pipe line, Aransas and San Patricio Counties, $992,798.

Tex., Dallas—TRAFFIC SIGNALS—City, City Hall, Main and Harwood Sts., electric traffic signal sys. expansion, $500,000. J. G. Rollins Ch. P. Wks. Engr.

Wis., Port Washington—SWIMMING POOL—City, swimming pool, $100,000.



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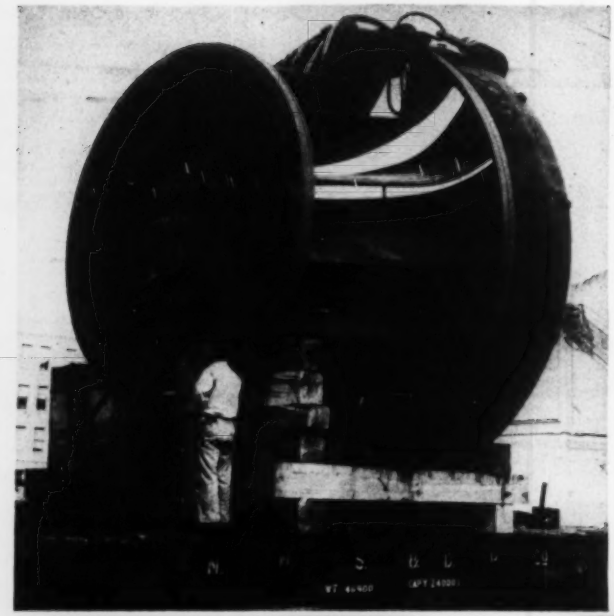

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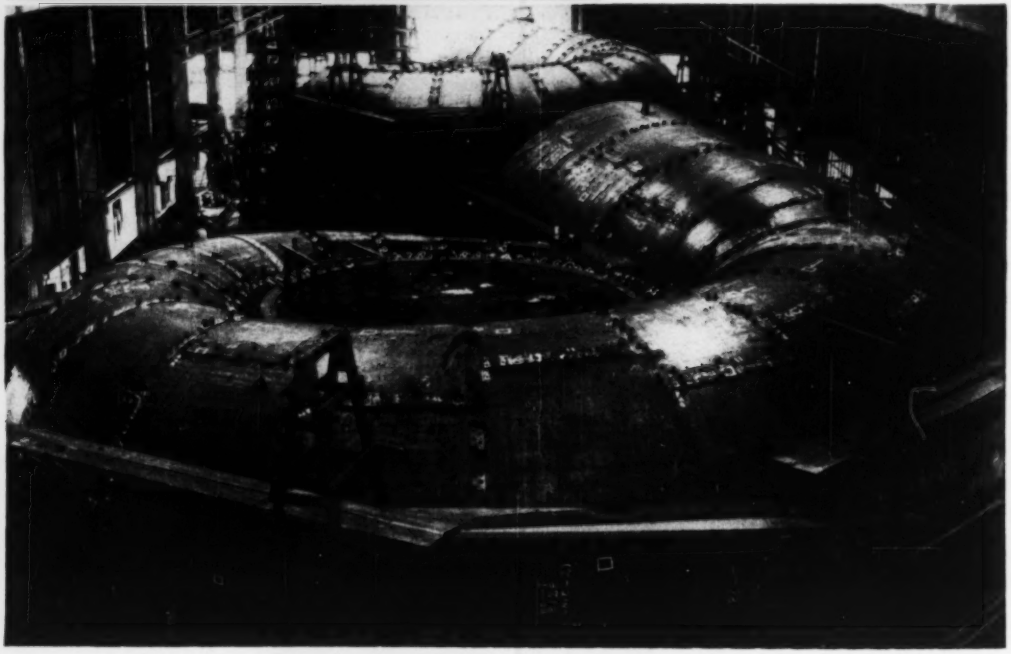


NEWPORT NEWS

SHIPBUILDING AND DRY DOCK COMPANY

Newport News, Virginia

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Conn., Waterbury**—HOSPITAL—B.A. 12/18—York & Sawyer, archts., 101 Park Ave., New York, N. Y., 6 story, bsmnt., 91x157 ft., brick, steel, rein.-con. hospital addn., for Waterbury Hospital, C. V. Wynne, supt. Robbins St., Waterbury, Conn. $1,000,000. Plans deposit $50. Juros, Baum & Boiles, 415 Lexington Ave., New York, N. Y., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—State P. Wks. & Hy. Dpt., State House Annex, Concord,

R. G. Watkins & Son, Inc., Mill Yard, Amesbury, Mass., LB $177,040. bit. treated gravel 1.9 mi. N.H. 119, town of Rindge. Bids Nov. 21. CD 11/14.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Hillsgrove, R. I. CA $3,500,673, est. $3,800,000. state hy., bridge, Bosford-Rowley-Georgetown-Newbury, Essex Co. CD 11/5, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **S. & A. Allen Constr. Co., Inc.**, 9 Newbury St., Boston, Mass. LB $2,400,000. Est. $2,225,000. HOUSING, Proj. 200-12, South St., West Roxbury and Jamaica Plain, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Bids Nov. 21. CD 11/5.

▲ **S. Volpe & Co., Inc.**, 185 Devonshire St., Boston, Mass. LB $1,573,010, est. $1,520,000. fdn. and superstructure, John Corcoran HOUSING, Proj. PHA 3-2, Thingvalla Ave., Cushing Court and Belmont Line, CAMBRIDGE, MASS. Cambridge Housing Auth., 51 Inman St., Cambridge, Mass. Bids Nov. 23. CD 11/13.

S. D. Shaw & Sons, 98 Erie St., Cambridge, Mass. LB $137,000. replacement boiler facilities, Eng. 19-016-52-8, WATERTOWN, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Joseph C. Bogue, 238 Main St., Cambridge, Mass., engr. CD 9/7 under LB.

John Zandonella, 70 Chase St., Bridgeport, Conn., CA, $552,400. Woodmont Elementary SCHOOL, Brewster Rd., MILFORD, CONN. Town, Milford, Conn. Bids Oct. 22, awarded Nov. 15. CD 10/30, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
December 11, Maryland December 19, New York
STREETS AND ROADS
December 14, 20, Pennsylvania
December 19, New York

† **N. Y., Niagara Falls**—LEANTO—B.A. 12/13—Pub. Wks. Office, Third Naval Dist., 90 Church St., New York, Zone 7, leanto alterations to Navy Exchange Cafeteria, U. S. Naval Air Station, NOY 28221. Extended date. CD 11/23.

Pa., Phila.—AIRPORT IMPRVS.—B.A. 12/14—Dpt. P. Wks., Bureau Eng., Surveys & Zoning, Thomas Buckley, dir., City Hall Annex, Schedule A, installing underground conduit sys. for power and communication distr., Contr. No. A 184 SW; Schedule B, high voltage distr. sys., Contr. No. A 199 SW, at Phila. International Airport. CD 10/4/49.

BIDS ASKED—BUILDINGS

N. Y., Bayside—SCHOOL—B.A. 12/10—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical and lighting fixtures for Junior High School 74, vicinity 210 St. and Horace Harding Blvd., Queens Boro. Plans deposit $15 general constr., $7 each others. Extended date. CD 11/15.

▲ **N. J., Vineland**—POWER PLANT—B.A. 12/11—Vineland Bd. Comrs., City Hall electric power plant and railroad siding, $2,500,000. Gilbert Assocs., Inc., 412 Washington St., Reading, Pa., engr. CD 7/28/50.

† **Md., Bethesda**—WARD CONVERSION, etc.—B.A. 12/12— Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., conversion of Ward 135 for proper care of female psychiatric patients, Spec. 29730; altering Building 112, Spec. 29812. Plans deposit $10 each. CD 5/27/48.

Pa., Phila.—HOSPITAL—B.A. 12/12—The Ballinger Co., archts., 121 N. Broad St., hospital addn. for Northeastern Hospital, Allegheny Ave. and Tulip St. Approx. $850,000. CD 3/22/46.

▲ **N. J., Camden** — HOUSING — B.A. 12/18 — Camden Housing Auth., City Hall, Peter J. McGuire Housing. $1,820,000. Wm. T. Harker, 307 Market St., Camden, engr., Edwards & Green, 17S. 5 St., Camden, archts. CD 2/21.

Pa., Braddock—HOUSING—B.A. 12/18—Allegheny Co. Housing Auth., County Bldg., Pittsburgh, Proj. 610, housing, $720,000. Plans deposit $6. Alexander Sharon, Berger bldg., Pittsburgh, archt. CD 9/12/50.

▲ † **N. Y., Schenectady**—FACILITIES—B.A. 1/3—U. S. Eng., 80 Lafayette St., New York, Zone 13, addnl. facilities at Schenectady General Depot. $10,000,000. Plans deposit $40. CD 9/14.

▲ † **N. J., Fort Monmouth**—BARRACKS—B.A. 1/8—U. S. Eng., 80 Lafayette St., New York 13, N. Y., 3 barracks bldg. Plans deposit $25.

SOON LETS CONTRACT—BUILDINGS

N. J., Camden—CHURCH—Camden R. C. Diocese, 721 Cooper St., soon lets contract St. Joseph's Church, $400,000. Paul C. Reiley, 111 Fifth Ave., New York, N. Y., archts. CD 4/2.

▲ **N. Y., Manhasset**—HOSPITAL—North Shore Community Hospital, c/o Isidore Rosenfeld, archt., 23 W. 47 St., New York, Zone 19, soon lets contract 105-bed hospital, Valley Rd. $5,000,000. CD 9/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Sicilian Asphalt Paving Co., 41 Park Row, New York 38, N. Y., LB $107,705, Contr. MT-109, asph. pavement in trackways of surface railroads of New York City Transit System, BMT Div., in Queens and Brooklyn, NEW YORK. Bd. Transportation, 370 Jay St., Brooklyn 1, N. Y. Bids Nov. 15. CD 7/14/49, under N. Y., Brooklyn.

Switzer Contr. Co. Inc., 57 Glen St., Glen Cove, N. Y. CA $499,620, storm water drainage, Cherry Lane, CARLE PLACE, N. Y. Dpt. Hys., Town of North Hempstead, Town Hall, Manhasset, N. Y. Bids Nov. 13. CD 11/9.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,

C. W. Good, Inc., 726 Columbia Ave., Lancaster, Pa., CA. $3,158,738, est. $3,500,000. c. conc. 35,615 ft. by-pass divided parkway type highway incl. one-plate girder and 7 I-beam bridges, T. R. 230, 30, Lancaster Co.;

L. G. DeFelice & Sons, Nettleton Ave., North Haven, Conn., CA. $3,985,948, est. $3,000,000. construct 43,745 ft. divided highway incl. 3 rein.-con. girder and 2 I-beam and rein.-con. slab bridges, T. R. 51, from Darlington to Ohio State Line, Beaver Co. Bids Nov. 2, awarded Nov. 26. CD 11/7, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

N. B. Putman Co., Honesdale, Pa., CA. $561,090, 5.42 mi. bit. on crushed aggregate surf. 22 ft. wide; one metal plate pipe arch; wid'n pavement with crushed aggregate base 4 ft. and bit. surf. new and existing pavement in Hawley Boro and north towards Honesdale, U. S. Rt. 6, Wayne Co. Bids Nov. 9. CD 11/13, under LB.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,

H. J. Williams & Co., York, Pa., CA. $1,584,497, est. $1,500,000, c. conc. 16,020 Turnpike Feeder Road Sect. between Colonial Park and Oakleigh, L. R. 768 (1-B), Dauphin Co. Bids Nov. 9, awarded Nov. 26. CD 10/17.

† **Malan Plumbing & Heating Co.**, 24-09 42 St., Long Island City, N. Y., LB $713,000. tank farm and connecting facilities, NOY 28455, Spec. 30488, Phila. Naval Base, MECHANICSBURG, PA. Dpt. Navy, Pub. Wks. Office, Phila. Naval Base, Phila., Pa., Bids Nov. 13. CD 11/9.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila. Pa., LB $2,103,945, sewage disposal plant at Southeast Works, Packer and Swanson Sts., PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila. Pa., Bids Nov. 14 CD 10/19.

† **T. F. Scholes, Inc.**, 632 Washington St., Reading, Pa., CA. $604,855, railroad facilities, TOBYHANNA, PA. Dpt. Army, 121 N. Broad St., Phila., Pa., Gilboy & O'Malley & Stopper, Inc., Liberty Trust Bldg., Phila., Pa., engr-archt. CD 9/20, under Public Buildings.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.

Williams Constr. Co., P. O. Box 145, Baltimore, Md. CA $1,920,133. grading, drainage, surf. dual hy. for 5.293 mi. east of Ridgeville, US Rte. 40, Contr. HO 234-3-315, Howard Co. Awarded Nov. 24. CD 10/22 under LB.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.

Dutcher Constr. Corp., Queenstown, Md. LB $1,958,037. grading, pipe culvert, installation, 3 concrete culverts, surf. 3.8 mi. U.S. Rte. 240, South of Clarksburg, State Rte. 121, Constr. M 383-2-315, Montgomery Co. Bids Nov. 20. CD 11/7.

Roy Richards Constr. Co., Carrollton, Ga. LB $368,421. transmission line and sub-stations, Charles, St. Marys and Calvert Counties, MARYLAND. Southern Maryland Electric Co-operative, Hughesville, Md. Bids Nov. 15. CD 11/8.

BUILDINGS

LOW BIDS AND CONTRACTS

Willis Ranch Homes, c/o Alwyn Cassens Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $800,000. 58 HOUSES, Grand Ave. and Willis St., North Baldwin, BALDWIN, N. Y.

▲ **Hicksville Downs Homes**, c/o Alwyn Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $2,500,000. 250 HOUSES on 53 acre tract, Woodbury Rd. and Plainview Ave., HICKSVILLE, N. Y.

COMMENT
from the
BUTLER ENGINEER

December, 1951

. . of martinis, squashed olives and 6 yard Mixers

There is a Butler Bin actually in use for olive pulp storage, and if all the olives in the nation's Saturday night crop of martinis were squashed together they'd just about fill it. (Estimate *not* based on 1945 Census). Anyway, the olive pulp tycoon's problem was to get accurate indications of low, intermediate and high bin load levels. Martini load levels in the human being can be determined by direct observation — but not olive pulp in a bin.

The answer to the problem? The Butler Bin Level Indicator — an alert, sensitive but very simple device actuated by a pressure-sensitive diaphragm. Interestingly enough, it *always* works. Not only with olive pulp but also with cement, sand, gravel, coal; in fact with virtually any bin stored material. And like Mr. Wrigley's flavor — it lasts and lasts.

I'm not supposed to write advertising. I'm strictly an engineer. But I did think you'd like to know.

Here's the "Did You Know" Department: we don't make concrete mixers, but of seven 6 yard mixers which have been manufactured, six of 'em are installed in Butler Central Mixing Plants.

The point is: of the gigantic new commercial Central Mixing Plants where very high production is demanded, 6 out of 7 turn to Butler.

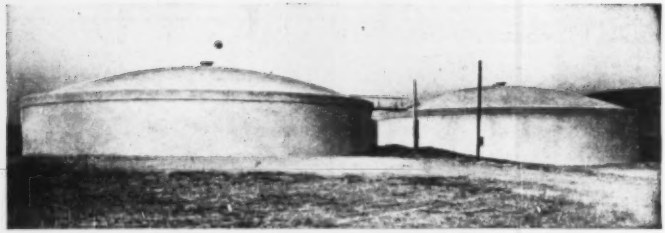
And the smaller fellas do too, for they've found that Butler gives them the same conscientious engineering attention.

Say, thinking about that olive pulp Bin: when they ordered the bin elevator shouldn't it more accurately have been called a bucket olivator?

See you in '52.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN



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Above are shown two 80' diameter 750,000 gallon pre-stressed "GUNITE" water storage tanks with "GUNITE" dome roofs. We built these tanks in 1943 for the Borough of Schuylkill Haven, Penna.

Pre-stressed "GUNITE" produces a water storage tank which is bottle tight and maintenance free. They may be built either at ground level, completely underground with earth covering over the dome roof, or may be in the form of stand-pipes or elevated tanks.

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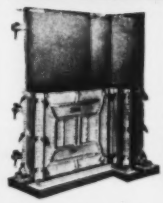
Save manpower time and material



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▲ **Wigton-Abbott Corp.**, 1225 South Ave., Plainfield, N. J., CA Approx. $2,983,847, design and construct PLANT and equipment, JAMESTOWN, N. Y. Marlin-Rockwell Corp., Chandler St., Jamestown, N. Y.

▲ **Richfield Village Apartments**, c/o Max Simon, archt., 1841 Broadway, New York, 23, N. Y., Owner Builds $2,000,000, Garden APARTMENT addn. for 260 families, Clifton Ave. and Allwood Rd., CLIFTON, N. J.

▲ **Orchard Knolls Homes**, c/o Percy S. Simon, archt., 32a Cedar Lane, Teaneck, N. J., Owner Builds, $2,500,000, 200 HOUSES on tract on Prospect St. (second section), GLEN ROCK, N. J.

▲ **Haworth Homes**, c/o Frederick W. Hansen, archt., Summit St. and East Railroad Ave., Tenafly, N. J., Owner Builds, $1,500,000, 75 HOUSES on tract on Prospect Ave. off Knickerbocker Rd., HAWORTH, N. J.

Gregory Plaza Homes, c/o Leonard G. Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J. Owner Builds, $800,000, 52 HOUSES on tract at Spring Valley and Conklin Aves., MAYWOOD, N. J.

Joseph L. Muscarelle Ltd., 42 First Street, Hackensack, N. J., CA, $200,000, FACTORY, on 30 acre tract on Spring Valley Rd., PARAMUS, N. J. Camloc Fastener Corp., 420 Lexington Ave., New York, 17, N. Y.

Theodore Potts, 55 Harrison St., Princeton, N. J., Separate Contracts, $500,000, RESIDENTIAL DEVELOPMENT, PRINCETON, N. J.

▲ **Louis M. Bleznak & Sons, Inc.**, 814 N. Broad St., Woodbury, N. J., Separate Contracts, $1,152,000 128 unit, RESIDENTIAL DEVELOPMENT, West Deptford Twp., Emerson Ave., Woodbury, THOROFARE, N. J. Dante D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Bucks County Homes, Oakford, Pa., Separate Contracts $500,000, RESIDENTIAL DEVELOPMENT, Hendrickson Rd., TRENTON, N. J.

Wilson Constr. Co., 305 Bedford St., Johnstown, Pa., CA. Approx. $200,000. Diesel Repair SHOP, JOHNSTOWN, PA. Conemaugh & Blacklick R. R. Co., H. M. Dalziel, ch. engr., Bethlehem, Pa. Horace Bailey, Johnstown, Pa. archt. CD 5/1/51.

Clarence B. Heckler, W. Main St., Lansdale, Pa., Separate Contracts. $462,000. RESIDENTIAL DEVELOPMENT, Edgemont and Main Sts., incl. paving and sewers. LANSDALE, PA. George S. Idell, 117 S. 17 St., Phila., Pa., archt.

Guy Miller Co., 1616 Robinson Blvd., Pittock, Pa., LB $346,925, est. $527,782, 8 bldgs., 50 family, HOUSING, MCKEES ROCKS, PA. Allegheny County Housing Auth., County Office Bldg., Pittsburgh, Pa., Alexander Sharove, 601 Berger Bldg., Pittsburgh, Pa., archt. CD 9/12/50.

Connelly Containers, Delaware Ave. and Morris St., Phila., Pa., Separate Contracts. Approx. $500,000. 1 story, 227x450 ft., masonry MFG. BLDG. addn., PHILA., PA. Clarence L. Caspary, 1400 S. Penn Square, Phila., Pa., archt.

Frank Curk, 3410 N. 18 St., Phila., Pa., Separate Contracts Approx. $482,000. 24 GARAGES, PHILA., PA. S. W. Greenberg, 7968 Forrest Ave., Phila., Pa., engr.

▲ **Kiefer-McCabe & Siverdloff**, 4900 Parrish St., Phila., Pa., CA. $5,500,000. RESIDENTIAL DEVELOPMENT, Bustleton Ave., etc., PHILA., PA. Lorraine Park Co., 4900 Parrish St., Phila., Pa. CD 10/30, under CA.

Oak Lane Corp., 1614 E. Upsal St., Phila., Pa., CA. $460,000 RESIDENTIAL DEVELOPMENT, 65 Ave., PHILA. PA. Melrose Park Gardens, 1614 E. Upsal St., Phila., Pa., Charles Frederick Wise, 2063 S. Cecil Ave., Phila., Pa., archt.

C & I Homes, 49 and Parrish Sts., Phila., Pa., Separate Contracts. Approx. $500,000. RESIDENTIAL DEVELOPMENT, RIDLEY PARK, PA. Charles Faulker, 10 E. Lownes Lane, Springfield, Pa., archt.

Pottsiger Co., 328 Tulpehocken Ave., West Reading Pa., CA. $664,035, general constr. PATIENT BLDG., WEST READING, PA. Reading Hospital, 6 and Spruce Sts., West Reading, Pa. Bids Nov. 5. CD 11/27, under LB.

Property Sales Co., 900 Court Square Bldg., Baltimore 2, Md. Owner Builds. $511,600. sixty-eight 2 story, bsmnt., 19x32 ft. row type RESIDENCES, 1300 block, Pentridge Rd., BALTIMORE, MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES

December 14, Tennessee December 21, Florida

STREETS AND ROADS

December 12, Louisiana December 14, Tennessee

Ky., Louisville—B.A. 12/18—Louisville Water Co., S. Third St., installing 18,800 ft. 30 in. rein.-con. water main along Bardstown and Shepherdsville Rds. in Jefferson Co. Plans deposit $15. CD 11/23.

BIDS ASKED—BUILDINGS

Ga., Ashburn—HOUSING—B.A. 12/11—Ashburn Housing Auth. Ashburn, Housing Projects GA 86-1 and GA 87-2 $350,000. Extended date. CD 11/12.

Ga., Cartersville—HOUSING—B.A. 12/12—Cartersville Housing Auth., Cartersville, 110 housing units, $850,000. Extended date. Francis M. Daves, 57 8 St. N.E., Atlanta, archt. CD 11/8.

Ga., Toccoa—HOUSING—B.A. 12/12—Toccoa Housing Auth., Toccoa, 88 housing units, $800,000. Extended date. Bothwell & Nash, 206 Roswell St., Marietta, archts. CD 11/7.

La., Lafayette—SCHOOL—B.A. 12/13—Lafayette Parish School Bd., Lafayette, Third Ward Elementary

School. Plans deposit $20, Diboll-Kessels & Assoc., 637 Pere Antoine Alley, New Orleans, archts. CD 12/19/49.

Tenn., Donelson—DORMITORIES—B.A. 12/13—State Purchasing Dpt., State Capitol, Nashville, 2 dormitories at State Home for Feeble Minded. $600,000. CD 3/23/51.

La., Bogalusa—HOUSING—B.A. 12/18—Bogalusa Housing Auth., c/o A. G. Root, chn., Bogalusa, 56 brick, tile, concrete negro dwelling units, Proj. LA 24-3; 22 white dwelling units, Proj. LA 24-4, $750,000. Plans deposit $25, Wm. R. Burk & Assoc., Pan American Bldg., New Orleans, archts. CD 3/9.

† Ky., Fort Knox—ACADEMY—B.A. 1/11—U. S. Eng., 830 W. Broadway, Zone 3, armored academy (The Armored School). $750,000. Plans deposit $15, Otis & Grimes, Tyler Bldg., Louisville, archts. CD 9/28.

SOON LETS CONTRACT—BUILDINGS

▲ Ky., Earlington—POWER PLANT—Kentucky Utilities Co., Inc., First National Bank Bldg., Lexington, soon lets contract power plant addns., near here, $9,000,000, Sargent & Lundy, 140 S. Dearborn St., Chicago 3, Ill., engrs. CD 2/7/51, under Ky., Central City.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NORTH CAROLINA—State Hy. & Pub. Wks. Comn., Raleigh:

Kiker & Yount, Inc., Reidsville, N. C., LB $399,598, est. $400,000-$500,000, grading 11.81 mi. U.S. 29 and 70, Proj. No. 5402, Randolph and Guilford Counties;

Carolina Paving Co., Inc., Charlotte, N. C., LB $161,456, est. $175,000-$200,000, traffic bound macad. and bit. surf. tr. 3.7 mi. U.S. 321, Proj. 6343, F-180 (7), Gaston Co.;

Gilbert Eng. Co., Inc., Statesville, N. C. LB $123,179, est. $150,000-$175,000, traffic bound macad or PCSBC and bit. surf. tr. 7.04 mi. Proj. 8-553, S-543 (1);

Gilbert Eng. Co., Inc., Statesville, N. C. LB $123,179, est. $150,000-$175,000, traffic bound macad or PCSBC and bit. surf. tr. 7.04 mi. Proj. 8-553, S-543 (1);

H. R. Stewart & Co., 5 Westchester Dr., Asheville, N. C. LB $108,149, est. $100,000-$125,000, traffic bound macad and bit. surf. tr. 1.53 mi. Proj. 9409 F-460 (1), Haywood Co.;

Dickerson, Inc., Box 448, Monroe, N. C., LB $109,839, est. $100,000-$125,000 STBC, bit. surf. tr. or sand asph. or b. conc. surf. 7.61 mi. Proj. 1-9-1-211, Bertie Co.;

Wayne Eng. & Constr. Co., Box 306, Mt. Olive, N. C., LB $88,686, est. $100,000-$125,000. STBC, bit. surf. tr. or sand asph. or b. conc. surf. 8.99 mi. Proj. 1-9-6-212, Edgecombe Co.; LB $114,595, est. $150,000-$175,000, STBC, bit. surf. tr. or sand asph. or b. conc. surf. 10.9 mi. Proj. 1-9-6-213, Edgecombe Co.;

Sloan Constr. Co., Inc., Box 747, Greenville, S. C., LB $128,389, est. $125,000-$150,000. STBC, bit. surf. tr. or sand asph. or b. conc. surf. 10.5 mi. Proj. 4-9-35-216, Franklin Co.;

A. C. Shearer Co., 128 Chapel Hill, N. C., LB $236,110, est. $250,000-$300,000. Traffic bound macad or PCSBC, bit. surf. tr. or sand asph. or b. conc. surf. 13.88 mi. Proj. BS 5-7-42-44, Alamance Co.;

Barnhill & Long, Inc., Tarboro, N. C., LB $63,127, est. $50,000-$75,000, grading 7.79 mi. Proj. 1-401, S-459 (1), Gates Co.;

F. D. Cline Constr. Co., Box 349, Raleigh, N. C., LB $69,845, est. $50,000-$75,000. sand asph. or b. conc. surf. 12.73 mi. Proj. 4-9-37-227, 4-9-27-230, Code 5900-429, Code 5900-445, M. S. 4-3-37. Bids Nov. 27. CD 11/19.

† J. Hilbert Sapp, Inc., P.O. Box 2053, Orlando, Fla., CA, $936,529, missile assembly shops at Patrick Air Force Base, Inv. No. 52-69, COCOA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids. CD 11/28, under LB.

Troup Bros. Inc., 4151 S. Dixie Hy., Miami, Fla., LB $695,007, ramp paving, sanitary and storm sewers at Miami International Airport, MIAMI, FLA. Dade Co., Court House, Miami, Fla. Bids Nov. 20. CD 11/8.

† Joe W. Hendrix, P.O. Box 773, Shreveport, La. CA $296,772. 1,757,000 cu. yd. earthwork and other work on left descending bank of Black River, Inc. 52-33, Concordia Parish, LOUISIANA. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Nov. 20. CD 10/29.

▲† R. B. Potashnick, Cape Girardeau, Mo. LB $1,105,203. earth levee, concrete floodwall and drains, rein.-con. gate wall, gate storage house and sewers, Ashland, KENTUCKY. U. S. Eng., 257 Fourth Ave., Huntington, W. Va. Bids Nov. 6. CD 10/31.

▲† J. B. Michael & Co., 1021 Heywood St., Memphis, Tenn. LB $1,141,707, est. $1,398,576. Alternate 1, concrete aprons, runways, taxiways, Fort Campbell Air Force Base;

Breslin Constr. Co., Brook St., Louisville, Ky. LB $985,197, est. $1,404,945. Alternate 2, bit. aprons, runways, taxiways, Fort Campbell Air Force Base, Eng. 15-029-52-36, FORT CAMPBELL, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids Nov. 27. CD 10/31.

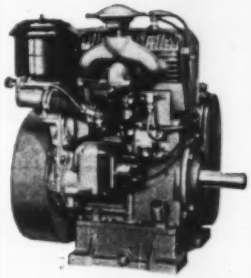
BUILDINGS

LOW BIDS AND CONTRACTS

Motley Constr. Co., Farmville, Va., LB $767,740, Negro Junior HIGH SCHOOL, HAMPTON, VA. Elizabeth City Co., Hampton, Va., Bids Nov. 12. CD 10/25.

▲† Wise Constr. Co., 8 and Grace Sts., Richmond, Va., CA, $2,202,200. 3 WAREHOUSES, Richmond Quartermaster Depot, Eng. 44-110-52-8, RICHMOND, VA. U. S. Eng., Box 119, Norfolk 1, Va., Bids Nov. 14. CD 11/20, under LB.

POWER ADVANTAGE in the 7 to 13 hp. Range...The 2-cylinder WISCONSIN *Air-Cooled* ENGINES



TE and TF 4-cycle 2-cylinder standard engines, 7 to 13 hp.

Here is the POWER ADVANTAGE story of the 2-cylinder Wisconsin Heavy-Duty Air-Cooled Engines, the development of which fills the need for a power linkage between the single-cylinder and four-cylinder types.

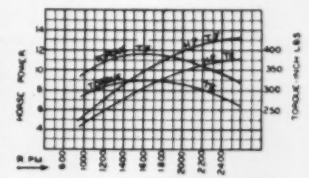
Heavy-duty service features include:

1. **Dependable air-cooling under all climatic and weather conditions.**
2. **Self-cleaning tapered roller bearings at *both* ends of the crankshaft to withstand either side-pull or end-thrust without danger to bearings.**
3. **Rotary type high tension OUTSIDE Magneto with Impulse Coupling operates as an entirely independent unit that can be serviced or replaced in a few minutes.**
4. **Maximum torque at usable speeds for equipment that really has to go to work.**

SPECIFICATIONS

MODELS	TE	TF
Bore.....inches	3	3¼
Stroke.....inches	3¼	3¼
No. of cylinders	2	2
Displ. cubic inches	45.9	53.9
H.P. and R.P.M. range	7.2 at 1400	8.6 at 1400
	11.2 at 2600	13.3 at 2600
Net weight in lbs., Standard engine, side-mount tank	220	220
Standard power unit	255	255
Added weight for clutch	35	35
Added weight for clutch reduction	85	85

Write for copy of Bulletin S-119 for complete descriptive data.



POWER CURVE AND HORSEPOWER LISTING SHOWS MAXIMUM DYNAMOMETER HORSEPOWER OF ENGINE complete with fan, muffler, and air cleaner. For continuous heavy-duty operation do not rate the engine at more than 80% of the horsepower shown at any given speed.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

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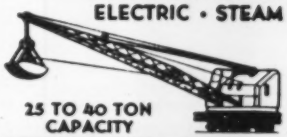

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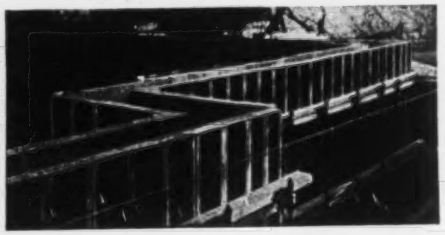

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Frederick, Maryland

E. D. Lambert, 301 9 Ave., Huntington W. Va., LB $216,-621, 1 story, 100x120 ft. concrete block bulk PLANT, WHEELING, W. VA. Standard Oil Co., South Side, Charleston, W. Va. Bids Nov. 9. CD 11/1/12.

Henry G. Newsom & Co., Professional Bldg., Charlotte, N. C., Separate Contracts. Approx. $400,000. 65 HOMES, Wendover Lane, CHARLOTTE, N. C.

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C. LB $474,980, 70 DWELLING units, N. C. 10-11, 10-7, CLINTON, N. C. Eastern Carolina Regional Housing Auth., Goldsboro, N. C., Bids Nov. 20. CD 10/23.

Morris Constr. Co., News Bldg., Greenville, S. C., CA. $350,000. RESIDENTIAL DEVELOPMENTS, FAIRFAX, S. C.

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C. CA. $539,890, Proj. NC 10-11, HOUSING units for Seymour Johnson Fields, GOLDSBORO, N. C. Eastern Carolina Regional Housing Auth., Goldsboro, N. C., Bids Nov. 20. CD 11/27, under LB.

Wilson Constr. Co., Marion, S. C., Owner Builds, Approx. $850,000. 106 RESIDENCES, ALLENDALE, S. C.

T. C. Holmes, 1400 Medlock Rd., Decatur, Ga., Owner Builds, $300,000, 19 HOMES addition to North Decatur Heights Subdivision, DECATUR, GA.

J. N. Bray Co., Valdosta, Ga. Owner Builds, $325,000 40 HOMES, VALDOSTA, GA.

▲ Knox Corp., Thomason, Ga., Owner Builds, $1,000,000. 239 HOMES, VALDOSTA, GA.

Zaret Constr. Corp., 1901 West Ave., Miami Beach, Fla., CA, $661,333, Kinlock Park Junior High SCHOOL, MIAMI, FLA. Dade Co. Bd. P. Instruction, 275 N.W. 2 St., Miami, Fla. Bids Nov. 7. CD 10/30.

D. W. Newell, Orlando, Fla., CA, $300,000. RESIDENTIAL DEVELOPMENTS on Asbury and Cole Sts., ORLANDO, FLA. Perry Homes, Inc., Orlando, Fla.

Davis Constr. Co., 1215 Elm St., Birmingham, Ala., Owner Builds, $300,000 several RESIDENTIAL DEVELOPMENTS, BIRMINGHAM, ALA.

Vulcan Hiusing Corp., c/o Harry Strauss Sr., 4120 Montevallo Rd., Birmingham, Ala. Owner Builds, $400,000. 50 HOMES, HUNTSVILLE, ALA.

Delta Paving Co., 4100 Northview Dr., Jackson, Miss. LB $799,582, concrete floor sys. for Greenville Mills, Inc., GREENVILLE, MISS. City, Greenville, Miss. Bids Nov. 20. CD 10/25.

George Co., Lucedale, Miss., rejected bids Nov. 6, factory for Great Southern Box Co., LUCEDALE, MISS. Est. $600,000. CD 11/13, under LB.

Herman L. Bienvenu, 407 S. Main St., St. Martinville, La. LB $322,358. HOSPITAL, FRANKLIN, LA. St. Mary Parish, Franklin, La. Bids Nov. 20 CD 10/29.

Gentilly Homes, Inc., P. O. Box 8173, New Orleans, La. Owner Builds. $435,000. 37 HOMES Kendal Dr. and Metropolitan St., NEW ORLEANS, LA.

▲ R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, La. CA $4,000,000. twine MILL, NEW ORLEANS, LA. International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. Awarded Nov. 5. CD 12/3/47.

▲ † Southeastern Constr. Co., Peoples Bldg., Charleston, W. Va., T. A. Loving & Co., Box 989, Goldsboro, N. C., and Doyle & Russell, 823 W. 21 St., Norfolk, Va. LB $22,701,021, Troop HOUSING, serial No. Eng. 15-029-52-6, FORT KNOX, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Nov. 28. CD 10/17

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 18 Wisconsin

▲ O., Columbus—AIRPORT—B.A. 12/11—City, City Hall, extend east-west runway to 8,000 ft., taxiways, road relocation, lighting, grading, seeding at Port Coolumbus Airport. $1,600,000. CD 2/21/51.

BIDS ASKED—BUILDINGS

Ill., Riverside—SCHOOL—B.A. 12/13—School Dist. 96, 61 Woodside Rd., 2 story school. $500,000. Perkins & Wills, 309 Jackson Blvd., Chicago, Zone 6, archts. CD 3/31/49.

▲ O., Dayton—SCHOOL—B.A. 12/19—Bd. Educ., C. L. Borghardt, clk., 232 N. Main St., Parker Vocational School, First and St. Clair Sts. $2,000,000. Plans deposit $50. Rial T. Parrish, 940-945 U.S. Bldg., and W. Ray Yount, 419 Third Natl. Bldg., archts.-engrs. CD 11/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

John Dehner, Inc., 1206 Clark St., Fort Wayne, Ind. CA, $524,157, installing 42 in. concrete raw water main from St. Joe River Dam to filtration plant, FORT WAYNE, IND. Bd. P. Wks., City Hall, Fort Wayne, Ind. Bids Oct. 30. CD 11/7, under LB.

▲ ILLINOIS—State Div. Hys., Springfield, rejected bids Nov. 21, c. conc. 8.18 mi., in Ill. 13, Clay and Richland Counties, LB $1,493,705; c. conc. 256 mi., F.A. Route 131, Du Page Co., LB $537,922. CD 11/26, under LB.

WISCONSIN—State Hy. Dpt., Madison,
Wm. E. Brinkman, Oconomowoc, Wis., LB, $114,945, Contract 1, Nelson Bridge and approaches, 0.852 mi. The Lebanon-Ashippum Station Road, C. T. Hy. "O" S O 141 (5) Dodge Co.

Chas. D. Smith & Son, Inc., Hy. 23 East, Fond du Lac, Wis. LB $93,123, Contract 1, overhead structure, The U.S.H. 41-Appleton (Soo Line Overhead) Road, S.T.Hy. 125 Proj. SG 0730 (4). Outagamie Co. Bids Nov. 27. CD 11/9.

▲ **WISCONSIN**—State Hy. Comn., Madison, Wis.

Joe Jaeger Excavating Co., West Bend, Wis., LB $71,369, Contract 2, grav. or crushed stone base course 7.072 mi. The U.S.H. 51-C.T.H. "K" Road, S.T.Hy. 54, Proj. T 033 (2), Portage Co.; LB $93,298, Contract 1, grav. or crushed stone base course 13.25 mi. The West Line-Bloomer Road, S.T.Hy. 40, Proj. S 058 (3), Chippewa Co.; LB $111,622, Contract 2, grav. or crushed stone 7.1 mi. The Eagle River-Michigan State Line Road, Section 1 U.S.Hy. 45,Proj. F 09-2 (18), Vilas Co.; LB $111,790, Contract 2, grav. or crushed stone base course 7.202 mi. The Eagle River-Michigan State Line Rd. U.S.Hy. 45, Section 2, Proj. F 09-2 (18), Vilas Co.;

L. G. Arnold, Inc., Eau Claire, Wis., LB $128,058 Contract 1, base course surf. 0.6 mi. The Spring Valley-Menomonie Road, S.T.Hy. 29, Red Cedar River Bridge Approaches, Proj. T 072 (5), Dunn Co.;

Ryan Bros., Co., Janesville, Wis., LB $299,501, Contract 1, grading, draining, ballast 8.504 mi. The Platteville-Mineral Point Rd., U.S.Hy. 151, Proj. F 012-1 (33) and F 012-1 (32), Lafayette and Iowa Counties;

Badger Highways Co., Inc., Menasha, Wis., LB, $99,635 Contract 3, single aggregate bit. 5.566 mi. St. Augustine St. (Village of Pulaski) and Pulaski-Krakow Rd., S.T.Hy. 32, Proj. S 0261 (2) and 0261 (1) Brown, Oconto and Shawano Counties;

Arthur Overgaard, Elroy, Wis., LB, $72,007, Contract 1, grav. or crushed stone base course 5.134 mi. The Cutler-Necedah-East County Line Rd., S.T.Hy. 21 Proj. S0500 (16), Juneau Co.;

James Peterson & Sons, Medford, Wis., LB, $231,266 Contract 2, grav. or crushed stone base course 14.392 mi. The Eagle River-Michigan State Line Rd., Sections 1 and 2, U.S.Hy. 45, Proj. F 09-2 (18) Vilas Co.;

Stewart Watson Constr. Co., Madison, Wis., LB, $74,645 Contract 2, traffic bound base course 8.504 mi. The Platteville-Mineral Point Rd., U.S.Hy. 151 Proj. F 012-1 (33) and F 012-1 (32) Lafayette and Iowa Counties. Bids Nov. 27. CD 11/9.

Gettman Brothers, South Haven, Mich. CA $149,578. interceptor sewers, vitr. tile, c.i. sewer pipe, manholes, chambers, etc., 2 sewage lift stations, piping, pumps, etc., ST. JOSEPH, MICH. City, Ira D. Wagner, city clk., St. Joseph, Mich. Bids Nov. 13. CD 10/31.

BUILDINGS

LOW BIDS AND CONTRACTS

Harry H. Verkeler, 645 N. Hebler St., South Bend, Ind., LB $800,000, Pierre Navarre SCHOOL, SOUTH BEND, IND. School Bd., 228 St. Joseph St., South Bend, Ind. Bids Oct. 22. CD 10/3.

The Austin Co., 510 N. Dearborn St., Chicago, 10, Ill., CA, $500,000 FACTORY addn., CHICAGO, ILL. Appleton Electric Co., 1713 W. Wellington St., Chicago, Ill. Awarded Nov. 16.

▲ **Holmes Constr. Co., Inc.**, Palmer St., Wooster, O., CA, $21,000,000, Seamless Tube MILL, CHICAGO, ILL. Republic Steel Corp., 118 and Burley Sts., Chicago, Ill. Awarded Nov. 16. CD 9/12.

Jos. P. Jansen Co., 5176 N. Teutonia Ave., Milwaukee, 9, Wis., CA $376,000, carpentry and mill work;

Bauer & Schoeneck Constr. Co., 3411 W. Hopkins St., Milwaukee, 9, Wis., CA, $485,000 excav., grading, concrete and mason work, S. Clement Ave. and N. 95 St., SCHOOLS, MILWAUKEE, WIS. Bd. School Directors, 111 N. 10 St., Milwaukee 3, Wis. CD 9/26.

▲ **Reid-Patterson, Inc.**, 233 Briggs Bldg., Birmingham, Mich. Owner Builds. $1,000,000. HOUSING development on 45 acre Porritt Site, Adams Ave. Sect., BIRMINGHAM, MICH.

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA Approx. $5,165,000. Concrete, steel FOUNDRY addn. to slab reheat plant and factory, DEARBORN, MICH. Ford Motor Co., 3000 Schaffer St., Dearborn, Mich. CD 10/29, under CA.

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA $1,419,500. 2 story, bsmnt., brick, stone, steel Thomas A. Edison Junior High SCHOOL, DEARBORN, MICH. City, James A. Lewis, supt., Dearborn, Mich. CD 11/23, under LB.

Campbell Constr. Co., 9301 Michigan Ave., Detroit, Mich. CA $380,000. 1 story, rein.-con. WAREHOUSE incl. OFFICES, Nevada St., DETROIT, MICH. Whitaker Paper Co., 5820 Nevada St. E., Detroit, Mich.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York, N. Y. CA, $10,000,000. HOUSING and TOWNSHIP DEVELOPMENT, incl. 800 homes, churches, stores, schools, theater, etc., ONTONAGON, MICH. Cooper Range Mining Co., Ontonagon, Mich. Pace Associates, 53 W. Jackson St., Chicago, Ill., archts.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 12, Texas
December 18, Oklahoma

STREETS AND ROADS

December 12, Texas
December 18, Oklahoma
December 27, Colorado

Ia., Burlington—B.A. 12/13—City, Council, City Hall, Contr. 1, reconstr. bridge with 20 ft. open steel deck roadway and new steel sidewalk; Constr. 2, reconstr. bridge with new 22 ft. open steel deck roadway and new cantilevered steel sidewalk Mac Arthur Bridge across Mississippi River, Bids Nov. 15 rejected. CD 11/29, under LB.

† **South Dakota**—SUB-STATIONS—B.A. 12/13—Bureau Reclamation, Dpt. Interior, Huron, Wall Sub-station, Spec. No. DC 3579; Philip Sub-station, Spec. No. DC-3582, Transmission Div., Missouri River Basin Proj. Extended date. CD 11/1.

† **South Dakota**—SUB-STATIONS—B.A. 12/13—Bureau Reclamation, Dpt. Interior, Huron, Wicksville substation, Spec. DC 3580; Midland sub-station, Spec. DC 3581, Transmission Div., Missouri River Basin Proj. Extended date. CD 11/1.

Ia., Dakota City—B.A. 12/17—Humboldt Co. Drainage Dist. 134, K. M. Dale, co. audi., Dakota City drainage imprvs., incl. 2,471 cu. yds. channel excav., 14,700 lin. ft. 10- to 30-in. drain tile, 5,828 lin. ft. 10- to 15-in. storm sewer, 27 beehive intakes, 11 manholes 893 cu. yds. rock excav.

BIDS ASKED—BUILDINGS

Mo., St. Louis—HOUSING—B.A. 12/14—St. Louis Housing Auth., Gerard B. Cleary, exec. dir., 901 Washington Ave., Zone 1, 1,736 dwelling units, demolition of certain bldgs., Proj. MO 1-4. Plans deposit $100. Extended date. Hellmuth, Yamasaki & Leinweber, 722 Chestnut St., Zone 1, archts. CD 10/29.

▲ **Tex., San Antonio**—DWELLINGS—B.A. 12/17—San Antonio Housing Auth., 400 Labor St., Tex. 6-13, 154 dwelling units. $1,155,000. Ford & Rogers, Willow Way, Van Maltsberger, 2013 Belknap Pl., and R. Vander Stratten, 1546 Milam Bldg., archts. CD 9/5.

▲ **Tex., San Antonio**—HOUSING—B.A. 12/28—San Antonio Housing Auth., 400 Labor St., Tex. 6-6, 400 housing units, Brady Blvd. and Frio City Rd. $3,000,000. Ford & Rogers and Sam Zisman, Willow Way, and Widener & Walker, Alamo Natl. Bldg., archts. CD 9/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

City, City Hall, Burlington, Ia., rejected bids Nov. 15, reconstruct MacArthur Bridge across Mississippi River, BURLINGTON, IA. LB $865,580 20 ft. roadway, $949,500 22 ft. roadway. CD 10/25.

† **Hallett Constr. Co.**, Crosby, Minn., LB $714,260, (5 items) riprap for Garrison Dam and Reservoir, Proj. Inv. 20, NORTH DAKOTA. U. S. Eng., Fort Lincoln, P.O. Box 300, Bismarck, N. D. Bids Nov. 15. CD 10/24.

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Swinging arc	140°
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Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

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▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha, Neb., and **Morrison-Knudsen Co.,** 319 Broadway, Boise, Idaho, CA $15,339,210, excavation and main embankment, Garrison Dam and Reservoir Project, Inv. 52-6, NORTH DAKOTA. U. S. Eng. Fort Lincoln, Box 300, Bismarck, N. D. Bids Oct. 16. CD 10/24, under Ld.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., Capitol, Oklahoma City, Zone 5,

W. E. Steelman, 2800 E. 4 St., Oklahoma City 4, Okla., CA. $902,131, est. $781,000. b. conc. on crushed rock paving 7.171 mi. Oklahoma Co.;

Anchor Constr. Co., Barns Bldg., Muskogee, Okla., CA. $548,640, est. $758,000. b. conc. on crushed rock paving 7.025 mi. Oklahoma Co.;

Metropolitan Paving Co., 300 S. Indiana St., Oklahoma City 4, Okla. CA. $883,097 est. $690,000. b. conc. on crushed rock paving 8.218 mi. Oklahoma Co.;

Southwest General Constr. Co., Reserve Loan Life Bldg., Dallas, Tex., CA. $848,180, est. $661,000. b. conc. on crushed rock paving 6.01 mi. Oklahoma Co. Grand total $3,182,048. Bids Nov. 20. CD 11/7.

▲ **Houston Contg. Corp. of Houston,** Texas Co. Bldg., Houston, Tex., CA. Approx. $16,250,000 220 mi. 22 in. crude oil pipe line Houma La. to Port Arthur, Tex., CA. Approx. $875,000. 60 mi. 6- to 8-in. crude oil gathering lines to serve fields in Terrebonne Bay area, Terre Bonne Parish, La.; CA $560,000, 28 mi. 12¾ in. crude oil pipe line, Houma to Cocodrie, La., TEXAS AND LOUISIANA. Texas Pipe Line Co., Texas Co. Bldg., Houston, Tex. Grand total $17,685,000. CD 11/23.

City, Greenville, Tex. cancelled bids to have been opened Nov. 20, electric distr. sys. extens., improv. reinforcing of main or field line only. GREENVILLE, TEX. Est. $850,000. CD 11/13.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Jensen & Ridge,** 118 N. Martinson St., Wichita, Kan. CA $618,509. 28 BARRACKS, FORT RILEY, KAN. Dpt. Army, Purchasing & Contracting Office, Fort Riley, Kan. Bids Nov. 5. CD 7/2.

▲ **M. W. Kellogg Co.,** Philtower Bldg., Tulsa, Okla., CA. $2,000,000. Lubricating Oil PLANT,

Refinery Engineering Co. of Tulsa, Wright Bldg., Tulsa, Okla., CA. $375,000 auxiliary facilities for new plant, incl. addnl. tankage, water cooling tower and other off site units, CUSHING, OKLA. Deep Rock Oil Corp., Cushing, Okla.

Andrews-Parker, Inc., Box 927, Bryan, Tex., LB $567,508, est. $350,000. 35,100 sq. ft., masonry, concrete frame and slab fdn. HOSPITAL and BARN, COLLEGE STATION, TEX. A & M College of Texas, College Station, Tex. Bids Nov. 23. CD 10/30.

James T. Taylor & Son, Inc., Box 225, Fort Worth, Tex. LB $434,360, est. $553,294. Junior HIGH SCHOOL, FORT WORTH, TEX. Castleberry School Dist. River Oaks Sect., c/o D. R. Marsh, Fort Worth, Tex., Bids Nov. 21. CD 11/8.

Fair Oaks Building, Inc., 819 Penn St., Fort Worth, Tex., Own Forces. $325,000. SHOPPING CENTER, FORT WORTH, TEX. W. G. Clarkson, 819 Penn St., Fort Worth, Tex. CD 8/16, under LB.

Limbrick Constr. Co., Box 13007, Houston, Tex., LB $449,-[illegible] $[illegible],000. 40-bed HOSPITAL, KOUNTZE, TEX. Hardin Co., Court House, Kountze, Tex. Bids Nov. 19. CD 10/3.

▲ **C. F. Braun Co.,** 1000 S. Fremont Ave., Alhambra, Calif. CA. Approx. $8,775,000. Fluid Catalytic CRACKING REFINERY unit,

Flour Corp. Ltd., 2500 S. Atlantic Blvd., Los Angeles, Calif. CA. Approx. $1,750,000, crude distillation REFINERY, LaPORTE, TEX. Sinclair Refining Co., Gulf Bldg., Houston, Tex. CD 5/9/47, under Tex., Houston.

Gulf Oil Corp., Gulf Bldg., Houston, Tex. Own Forces. Approx. $685,000. 20-ton per day sulphur recovery REFINERY Unit, WADDELL, TEX. CD 11/16.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES

December 20, California

STREETS AND ROADS

December 20, California

BIDS ASKED—BUILDINGS

▲† **Wash., Tacoma**—BARRACKS—B.A. 12/18—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, two 165-man barracks bldg. at Madigan Army Hospital, Inv. 52¼-84. $1,032,000; barracks, wards, covered walks, facilities, Fort Lewis, Madigan Army Hospital, ENG 45-108-52-86. Extended date. Plans deposit $25. CD 10/24.

▲ **Calif., Richmond**—HOUSING—B.A. 2/12—Richmond Housing Auth., 219 Commercial St., 300 family unit housing, $2,000,000. Donald L. Hardison, 225 Broadway, Richmond, Calif. CD 9/12.

▲ **Calif., Bakersfield**—HOUSING—Bids Asked—Kern Co. Housing Auth., 517 Roberts Lane, 106 unit housing Project Cal 8-5. $1,000,000. Extended date. Ernest L. McCoy, 130 Hay Bldg., archt. CD 10/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Terteling & Sons, Inc.,** 4011 Fairview Ave., Boise, Idaho, LB $1,242,700, est. $2,049,000, driving twin 30 ft. diam. diversion tunnels, one 1,584 ft. long and other 1,210 ft. long, excav. open cuts at the two portals, Palisades proj., on south fork of Snake River in Bonneville Co., Spec. DC 3586, Idaho. Bureau Reclamation, Dpt. Interior, City bldg., Idaho Falls, Idaho. Bids Nov. 27. CD 11/9.

▲ **El Paso Natural Gas Co.,** Bassett Tower Bldg., El Paso, Tex., Owner Builds, $22,950,000, 10¾ mi. 30 in. main-loop gas line, 37,160 addnl. hp. compressor stations in new and expansion of existing stations in main line, CD 6/29, under New Mex.co; $1,034,404 booster plant and facilities for increasing line at Phoenix, Ariz., ARIZONA, TEXAS and NEW MEXICO.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix.

Fisher Contg. Co., Box 4035, Phoenix, Ariz., LB $190,326, select material 1.5 mi. Oracle Jct.—Globe Highway, Pinal Co.

ARIZONA—State Hy. Dpt., Phoenix.

H. L. Royden, Box 3707, Phoenix, Ariz., CA, $333,348 select material aggregate base, bit. road mix 2.8 mi. Winslow-Holbrook Hy., Navajo Co.;

Reliance Truck & A. L. Snuffer, Box 2293, Phoenix, Ariz., CA, $79,998, select material aggregate base, bit. road mix 5.5 mi. Hereford Hy. Cochise Co;

D. A. Flickinger, Box 896, Phoenix, Ariz., CA, $211,-173, select material aggregate base, bit. 3.4½ mi. Safford-State Line Hy., Graham Co.;

Phoenix-Tempe Stone Co., Box 1670, Phoenix, Ariz.; CA, $358,121, cut reslopiing, reshaping road surf. select material, bit. road mix 15 mi. Topak-Kingman Hy., Mohave Co. Grand total $982,640. Awarded Nov. 9.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

Ball & Simpson, 685 Delaware St., Berkeley, Calif., CA, $761,851, grading, surf. 8 mi. between Isabella and Weldon Kern Co. Bids Oct. 24, awarded Nov. 15. CD 10/31, under LB.

▲† **J. A. McNeil Co., Inc.,** 3115 West Mission Rd., Alhambra, Calif., LB $1,214,085, aerodynamic ballistic track range, Navy Ordnance Test Station, NOY 70960, Spec. 32550, INYOKERN, CALIF. Officer-in-Charge of Construction, Bldg. 981, Naval Ordnance Test Station, Inyokern, Calif. Bids Nov. 20. CD 10/29.

BUILDINGS

LOW BIDS AND CONTRACTS

Lovell Constr. Co., 12510 15 Ave. N. E., Seattle, Wash., Day Labor, $603,000, 67 frame HOUSES, 1 Ave. N. W. between W. 155 and 160 Sts., SEATTLE, WASH. CD 11/16.

Swinerton & Walberg, 225 Buch St., San Francisco, Calif., CA, Approx. $300,000, HOSPITAL addns., OAKLAND, CALIF. Samuel Merritt Hospital, 350 Hawthorne Ave., Oakland, Calif. Masten & Hurd, 526 Powell St., San Francisco, Calif., archts. Awarded Nov. 12. CD 2/19/48.

F. V. Hamoshire, P. O. Box 448, Salinas, Calif., LB $504,202, new Del Rey Woods Elementary SCHOOL, Kimball Ave., SEASIDE, CALIF. Monterey City Elementary & Union High School Dist., Box 1301 Monterey, Calif. Bids Nov. 6. CD 10/19.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Centralia—HEATING PLANT—B.A. 12/11—Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont. central heating plant at air force base. Plans deposit $50. R. P. Opie, c/o owner, regional engr.

Ont., Downsview—HEATING PLANT—B.A. 12/11—Defense Constr. Ltd., 441 Queen's Quay West, Toronto, central heating plant for air force and research center. Plans deposit $50. R. P. Opie, c/o owner, regional engr.

Que., Montreal—TRAFFIC CONTROL SYSTEM—B.A. 12/11—Executive Com., City Hall, traffic control system at 8 intersections, for Municipality. Plans deposit $25. H. A. Gibeau, City Hall, city engr.

BIDS ASKED—BUILDINGS

B. C., Vancouver—SUB-STATION—B.A. 12/10—A. J. Sutton, 425 Carrall St., 4 story, 120x130 ft. rein.-con. sub-station, for B. C. Electric, 425 Carrall St., $750,000. Plans deposit $50. Sharp & Thompson, Berwick, Pratt, 1553 Robson St., archts. CD 10/29.

Yukon Territory, Whitehorse—HOUSING—B.A. 12/18—Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man., 75 housing units. $450,000. D. W. Laird, c/o owner, regional engr.

▲ **Ont., Sarnia**—HOSPITAL EXPANSION—B.A. 12/24—Sarnia General Hospital Comm., Sarnia, 5 story, 48x225 ft. hospital expansion, plus 2 story, 90x101 ft. bldg., steel and brick, $1,750,000. H. H. Angus & Assocs., 615 Yonge St., Toronto, engrs. Govan, Ferguson, Lindsay, Kaminker, May, Langley & Keenleyside, 515 Jarvis St., Toronto, and N. B. Forbes, 197 Christiana St., Sarnia, archts. CD 11/21.

▲ **Ont., Malton**—HOUSING—Bids Asked—Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto 2 B, Ont. 500 houses. Approx. $4,600,000. R. P. Opie, c/o owner, engr.

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—FACTORY—Title Dress Co., 355 Adelaide St. W., soon lets contract 4 story, 80x80 ft. steel, concrete, masonry factory, $500,000. John H. Ross, 1251 Yonge St., engr. Barnett & Ridder, 644 Bayview Ave., archts. CD 1/14/46.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Terminal Constr. Co. Ltd., Dominion Square Bldg., Montreal, Que., CA $800,000, 100 unit, housing at air force base, GREENWOOD, N. S. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Nov. 5, awarded Nov. 21. CD 10/26.

Johnson Bros. Co. Ltd., 37 Market St., Brantford, Ont., CA, $500,000, standard air force base, mess hall CLINTON, ONT. De.ence Constr. (1951) Ltd., 441 Queen's Quay W., Toronto, Ont. Bids Oct. 9, awarded Nov. 21. CD 9/19.

▲ **S. McNally & Sons, Ltd.,** 220 King St. E., Hamilton, Ont. CA $1,095,000 installing, supplying 36 in. water main from Portland and Niagara Sts. to Bernard Ave. and Bedford Rd., TORONTO, ONT. City, City Hall, Toronto, Ont. Bids Sept. 25. CD 10/3, under LB.

H. J. McFarland Constr. Co. Ltd., Talbot St., Picton, Ont., CA, $150,000, 13,000 ft. sewerage sys. at air force base, TRENTON, ONT. Central Mortgage & Housing Corp., 441 Queens Quay W., Toronto, Ont. Bids Nov. 27. CD 11/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Shoquist Constr. Western Ltd., 1826 Tenth Ave. W., Calgary, Alta., CA $600,000, HOUSING DEVELOPMENT 108 houses at Currie Barracks, CALGARY, ALTA. Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man. Bids Oct. 22, awarded Nov. 19. CD 10/16.

Biltmore Constr. Co. Ltd., 7441 Granville St., Vancouver, B. C., CA, $301,333 35 permanent married QUARTERS, BOUNDARY BAY, B. C. Defense Construction (1951) Ltd., 360 Homer St. Vancouver, B. C. J. L. Adams, 60 Homer St., Vancouver, B. C., engr. Awarded Nov. 22.

Eastern Constr. Co., Airport Rd., Sandwich East, Windsor, Ont., CA, $152,000, one section 182x195 ft., second 30x380 ft., brick, concrete PLANT addn., CHATHAM, ONT. British Leaf Tobacco Co., 238 Patterson St., Chatham, Ont. Bids Oct. 27, awarded Nov. 27. CD 10/23.

Ingham & Smith Constr. Ltd., 2103 Valley Way, Niagara Falls, Ont., CA, $475,000, 1 and 2 story, 67x135 ft., brick, concrete SCHOOL, Drummond Rd., NIAGARA FALLS, ONT. Bd. Educ. of Stamford, Niagara Falls, Ont. John H. Ross, 1251 Yonge St., Toronto, engr. and Arthur B. Scott, 65 Empire St., Welland, archt. Awarded Nov. 17. CD 10/13/50.

Cobourg Lumber Co., 14 Covet St., Cobourg, Ont., Own Forces, $325,000, 35 HOUSES, PETERBOROUGH, ONT.

Kember Constr. Co., R. R. 1, Sarnia, Ont., CA, $100,-000, 1 story, 81x121 ft., brick, steel, warehouse and office, SARNIA, ONT. Canadian General Electric Co., Ltd., 212 King St. W., Toronto, Ont. Awarded Nov. 26.

Richmond Adelaide Lands Ltd., 205 Yonge St., Toronto, Ont. CA, $200,000, 1 story, 170x260 ft., concrete, brick, steel FACTORY, TORONTO, ONT. Dr. M. Simon, c/o Harry B. Kohl, archt., 9 Richmond St. E., Toronto, Ont. Awarded Nov. 26.

T. J. Colbourne Constr. Ltd., 388 Weston Rd., Toronto, Ont., CA, $600,000, 3 story, part bsmnt., Z-shaped, three wings, 124x137 ft., 66x37 ft. and 96x43 ft., masonry, block and brick, TORONTO, ONT. Children's Aid & Infants Homes of Toronto, c/o Horwood & White, archts., 229 Yonge St., Toronto, Ont., archts. Bids Nov. 19. CD 11/8.

T. J. Colbourne Constr. Ltd., 388 Weston Rd., Weston, Ont. CA, $501,322, Pensioners housing, 16 HOUSES, TORONTO, ONT. York Twp. Housing Co. Ltd., 2700 Eglinton St., Toronto, Ont. Bids Nov. 12, awarded Nov. 19. CD 11/9.

▲ **A. W. Robertson Co. Ltd.,** 57 Bloor St. W., Toronto, Ont., CA, Approx. $1,000,000, rein.-con., steel Chemical PLANT addn., TORONTO, ONT. Dominion Tar & Chemical Co., Ltd., 501 Keating St., Toronto, Ont. Awarded Nov. 24.

A. Preville, 1000 St. Roch St., Montreal, Que., CA Approx. $175,000, 1 story, 180x200 ft., concrete block structural steel storage WAREHOUSE at plant, MONTREAL, QUE. Warden King Ltd., 2104 Bennett Ave., Montreal, Que. CD 12/16/48.

LATIN AMERICA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Mexico, Chihuahua**—Bids Asked—Mexico Fed. Govt., c/o Dpt. of Hydraulic Resources, Mexico City, irrigation and drainage sys. Approx. $1,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Orinoco Mining Co. (U. S. Steel Corp.) 25 Broad St., New York, N. Y., U. S. A. CA. dredging and maintaining ship channel in Macareo and Orinoco Rivers, VENEZUELA. Government of Venezuela, Caracas, Venezuela.

▲ **Gahagan Overseas Constr. Co.,** 90 Broad St., New York, N. Y., U. S. A., and McWilliams Overseas Dredging Corp., 838 Fontane Pl., St. Louis, Mo., U. S. A., CA. In excess of $15,000,000 dredging and maintaining ship canal from Gulf of Paria to Puerto Ordaz on Orinoco River, VENEZUELA. Orinoco Mining Co., 25 Broad St., New York, N. Y., U. S. A.

(Proposal Advertisements see pp. 119 & 120)

OFFICIAL PROPOSALS

Bids: February 29, 1952

Habbaniyah Scheme

IRAQ GOVERNMENT — DEVELOPMENT BOARD

RAMADI BARRAGE AND SUBSIDIARY WORKS.

1. Tenders are invited by the Development Board of the Government of Iraq for the construction of a barrage, lock and fish ladder at Ramadi on the River Euphrates. The works include the installation of sluices, lock gates, lifting bridge and operating machinery.

2. The Contract Documents and Instructions as to tendering may be inspected on and after the 26th day of November 1951, at any of the following places, namely :—

(a) The offices of the Development Board, Baghdad.
(b) The Iraqi Embassy, Washington, D. C., U. S. A.
(c) The Royal Iraqi Legation, Paris.
(d) The Royal Iraqi Legation, Brussels.
(e) The offices of Messrs. Coode, Vaughan-Lee, Frank, & Gwyther, 9 Victoria Street, London, S. W. 1. England.

3. Firms desiring to tender may obtain copies of the Contract Documents between the 26th day of November 1951, and the 31st day of January 1952 (both days inclusive) from either the Development Board in Baghdad, or Messrs. Coode, Vaughan-Lee, Frank, & Gwyther in London upon payment of Twenty-five Iraqi Dinars. One Iraqi Dinar is equivalent to one pound Sterling.

4. Tenders must be accompanied by a deposit of I. D. 15,000 (Fifteen Thousand Iraqi Dinars) or the equivalent in pounds Sterling, to be made at the Rafidain Bank, Baghdad or at its London Agents, The Midland Bank, Overseas Branch, 122 Old Broad Street, London, E. C. 2. Full detailed conditions as to this deposit may be ascertained from the "Instructions to Persons Tendering" attached to the Contract Documents.

5. Tenders must be submitted to the Development Board, Baghdad, and will be received up to noon on the Twenty-ninth day of February, 1952.

6. Particular attention is drawn to Article 22 of the Instructions to Persons Tendering, namely, that tenders will only be accepted from firms of Contractors who have previously executed works of a similar nature and magnitude.

Secretary-General
Development Board.

Baghdad, 1951.

Bids: December 27, 1951

Kitchen Equipment—Terminal Building—Newark Airport Newark, N. J.

THE PORT OF NEW YORK AUTHORITY
PROPOSAL NO. 619

Sealed proposals for furnishing kitchen equipment for the Terminal Building, Newark Airport, Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111-8th Ave., New York 11, until 11:00 A.M. Thursday, Dec. 27, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, N. Y.

Bids: December 20, 1951

One Trash Truck (14 Cu. Yds.) Mounted on a Four-Wheel Drive Truck With a Ten-Foot Snow Plow La Guardia Airport

THE PORT OF NEW YORK AUTHORITY
PROPOSAL NO. 617

Sealed proposals for furnishing one Trash Truck (14 cubic yards) mounted on a Four-wheel Drive Truck, with a Ten-foot Snow Plow with Power Reverse, for delivery to La Guardia Airport, Queens, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111-8th Ave., New York 11, until 11:00 A.M. Thursday, Dec. 20, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, December 6, 1951

OFFICIAL PROPOSALS

Bids: December 19, 1951

New York Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, December 19, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids. refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, 333 Broadway, Albany 1, N. Y.				
Schenectady	FASS 51-28	Rosa Road-Hillside Ave.-River Rd. (Co. Rds. 2N, 3N, & 4N) Proj. S-351(1)	3.98	Asp. Conc. Ty. 1A, Optional	$20,000 Plans $15	$360,000
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Madison	FASS 51-26	Stockbridge Falls-Morrisville (Co. Road) Proj. S-360(1)	5.18	Graded Gravel Bit. D.S.T.	$13,000 Plans $15	$237,000
Oneida	FASS 51-27	Oriskany Falls-Lairdsville Pt. 2 (Co. Road) Proj. S229(2)	4.80	Bit. Mac. Opt. Rd. Mix	$10,000 Plans $15	$167,000
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
		DISTRICT No. 3				
		William Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse 1, N. Y.				
		DISTRICT No. 7				
		Roy F. Hall, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
13 Counties 5 Cities	FARC 51-18 FARC 51-19 FARC 51-23	Installation of Automatic Recording Traffic Counters in Dist. 2, 3, & 7 Proj. SWHP 1(8)		Installation of 28 Aut. Recording Traffic Counters	$2,800 Plans $15	$49,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester 1, N. Y.				
Monroe	FAC 51-7	Rochester City: Ridge Road West (Mt. Read Blvd. to Lake Ave.) Proj. U-402(6)	1.67	Asp.Conc.Ty.2A=1.60 Mi. Misc. Work=0.07 Mi.	$45,000 Plans $25	$835,000
Monroe	FASS 51-29	Edgemere Drive (Co. Rd.) Proj. S-289(1)	0.72	Fd. Crse. Gravel	$16,000 Plans $10	$294,000
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Chautauqua	FARC 51-82	Penn State Line-Dunkirk Pts. 1, 2, & 3 S. H. 9030, S334, S344 Dunkirk-Silver Creek S.H. S304 Proj. F-458(10)	33.75	Asp. Conc. Ty. 1A, Opt.	$123,000 Plans $10	$2,057,000
Cattaraugus	FASSH 51-9	Ellicottville-Springville Pt. 1 Proj. S-365(1)	9.34	Asp. Conc. Ty. 1A Opt.=9.17 Mi. Misc. Work=0.17 Mi.	$70,000 Plans $50	$1,222,000
Erie	FAOT 51-8 FAST 51-7	N. Y. State Thwy.-Ontario Section (Harlem Ave.-Williams St.); Henry St.; Parker St.; Dingens St. Proj. UI-1071(8)	1.82	2 Crse. Cem. Conc. Pavt. 266.32' Wide=0.90 Mi. Bit. Mac. Ty. 1=0.81 Mi. Misc. Work=0.11 Mi. Hy. Sep. Alpha I-Beam 213.7' Sp. Alpha Royalty=$260.	$45,000 Plans $15	$780,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	FARC 51-76	Rhinebeck-Hyde Park S.H. 432 Hyde Park-Staatsburg S.H. 5135 Proj. F-322(10)	2.48	9" Cem. Conc. Pavt. 44' Var. Wide	$48,000 Plans $10	$813,000
Westchester	TSP 51-2	Grade Separation of Underhill Rd. (Co. Rd. 131) & Taconic State Parkway	0.23	Asp. Conc. Ty. 1-A Opt. 85'-284' Sp. Conc. Rig. Frame	$16,000 Plans $15	$290,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton 21F, N. Y.				
Chenango	FARC 51-78	Norwich-So. New. Berlin Pt. 2, SH 1394 Proj. F-620(8)	0.11	Misc. Work 35' Conc. Slab	$3,000 Plans $10	$52,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr. Montauk Highway at Little East Neck Rd., Babylon, Long Island, N. Y.				
Suffolk & Nassau	FARC 51-51	S.H. Nos. 9018, 8474, E8438, 8470, E8440, 8444, 8445, 8460, 1841, 8291, 1833, 1274	19.10	Landscaping=17.00 Mi. Landscaping & Misc. Work=2.10 Mi.	$4,000 Plans $10	$72,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Opportunity Advertising

Think SEARCHLIGHT First!

OFFICIAL PROPOSALS

36" Submerged Outfall Sanitary Sewer, Potomac River, Fairfax County, Virginia

Sealed bids will be received by the Board of Supervisors of Fairfax County, Virginia at the Office of Sanitary Engineer, County of Fairfax, VEPCO Building, Fairfax, Virginia, until 2:00 O'CLOCK, P.M., E.S.T., MONDAY, DECEMBER 17, 1951, for the construction of a reinforced concrete sewage diversion chamber and the installation of 709' of 36" corrugated, paved and coated, asbestos-bonded, metal pipe, 495' of which is to be supported under water on 27 creosoted pile bents (The 36" pipe and couplings are to be furnished by the Owner, without cost to the Contractor, and are now stored at the project site), which has been designated as "Contract No. 9", and promptly thereafter they will be publicly opened and read in the Board of Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications and contract documents may be examined at the Office of Sanitary Engineer, and copies thereof may be obtained from Massey Engineers, Consultants, Ford Building, Fairfax, Virginia, upon payment of a deposit of $15.00 in cash for each set, which sum will be refunded upon the return of such documents in good condition within ten (10) days after the bid date. Bids must be submitted on the forms supplied for this purpose and in strict accordance with the instructions therefor. Each bidder will be required to show evidence of possession of a certificate of registration as a contractor in the Commonwealth of Virginia before his bid will be considered.

Each bid must be accompanied by a bid bond or certified check made payable to the Treasurer of Fairfax County, Virginia in the amount of at least five percentum (5%) of the total amount of the bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

The time for completion of the contract is one hundred and twenty (120) consecutive calendar days and liquidated damages in the amount of $20.00 per day will be assessed in event of delay or default in the completion of the contract.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

James J. Corbalis, Jr.
Sanitary Engineer, County of Fairfax
Fairfax, Virginia

Bids: December 20, 1951

Intercepting and Outfall Sewers and Sewage Treatment Plant

Danville Municipal Authority, Borough of Danville

Montour County Pennsylvania

Sealed proposals will be received at the office of J. M. Robbins, Solicitor for the Danville Municipal Authority, at 104 Mill Street, Danville, Pennsylvania, until 1:30 P.M., E.S.T., Thursday, December 20, 1951, for furnishing all necessary labor, materials and equipment, and performing all work for the construction of INTERCEPTING AND OUTFALL SEWERS AND A SEWAGE TREATMENT PLANT. Bids will be publicly opened and read at 2:00 P.M., E.S.T., Thursday, December 20, 1951, in the Council Chambers of the Borough of Danville, Borough Hall Building, Mill Street, Danville, Pennsylvania. Separate proposals will be received upon five (5) parts of the project as follows:

Contract One—CONSTRUCTION OF INTERCEPTING AND OUTFALL SEWERS.
Contract Two—GENERAL CONSTRUCTION OF A SEWAGE TREATMENT PLANT.
Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.
Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.
Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT.

Each proposal shall be accompanied by a certified check in amount not less than five (5) per cent of the bid total, or a bid bond in amount not less than seven and one-half (7½) per cent of the bid total, all in accordance with provisions contained in the Specifications.

Copies of the Contract Documents, including Plans and Specifications will be available for inspection at the office of Gannett Fleming Corddry & Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, and at the office of J. M. Robbins, 104 Mill Street, Danville, Pennsylvania; or they may be obtained from the first of the above stated places upon deposit of the following amounts for each set:

Contract One—SEWERS —$10.00
Contract Two—
GENERAL CONSTRUCTION—$20.00
Contract Three—
PLUMBING WORK —$10.00
Contract Four—
HEATING WORK —$10.00
Contract Five—
ELECTRICAL WORK —$10.00

Full refund will be made to actual bidders for return of one of each set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty (50) per cent of the deposit.

N.P.A. controlled materials rating DO-T-8 issued for this Project.

Danville Municipal Authority
Borough of Danville,
Pennsylvania
Gannett Fleming Corddry &
Carpenter, Inc., Engrs.
600 North Second Street
Harrisburg, Pennsylvania

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

CIVIL ENGINEER experienced in office highway plans, design and surveys. Civil Service. Apply 226 Third Street, San Bernardino, California.

POSITIONS VACANT

ACCOUNTANT — FOR Philadelphia office of contractor. Some construction experience desirable but not essential. Reply giving education, age and experience. P-2541, Engineering News-Record.

ASSISTANT GENERAL Superintendent—Well established Northwestern Ohio General Contractor employing approximately 450 people on industrial, commercial and public work, has a permanent position for a young graduate Engineer or Building Contractor with at least ten years experience and a desire to get ahead in a growing organization. Please send full details of education, experience, salary wanted, age and other pertinent information, care of P-2469, Engineering News-Record.

ASSISTANT HYDRAULIC Engineer with some field experience in construction of hydro-electric power plant projects etc. for large Copper Company Chile, South America. Civil Engineering graduate preferred. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details, P-2570, Engineering News-Record.

FIELD SUPERINTENDENT wanted to assist General Superintendent. Must be qualified in project construction, frame, block and brick, large projects and in the Norfolk, Va. area; if proven satisfactory can become organization man. Write stating experience etc. in first letter, top pay to the right man. Reply to Lansdale Gardens, Inc., 409 Duke Street, Norfolk, Va.

HIGHWAY AND Sanitary Engineers—Positions for highway Draftsmen and designers, Office Engineers, water and sewerage and draftsmen. Good pay for qualified men in accordance with experience. Opportunities for advancement. Write and furnish full information regarding education, training and experience, age, references and salary requirements. All replies considered strictly confidential. Department of Public Works, Baltimore County, Towson 4, Maryland.

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This index is published as a convenience to the readers. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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POSITIONS VACANT

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ASSISTANT MILL Metallurgist for large Copper Company, Chile, South America. Young college graduate with some experience, to work in Mill Metallurgical Laboratory. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details. P-2575, Engineering News-Record.

ESTIMATOR: PERMANENT position with long established general contractor in Elizabeth, N. J. area. Must be experienced in industrial construction quantity takeoff and pricing. Submit full resume, stating experience, education, age, availability and salary expected. P-2419, Engineering News-Record.

FIELD ENGINEER: Permanent position. Nationally known firm of heavy engineering contractors specializing in Power Plants, Pumping Stations, Filtration and Sewage Plants, including mechanical installations, has permanent position open for top ranking field engineer. If you have necessary background of experience, reply giving salary desired, references and complete information. P-2521, Engineering News-Record.

MALE HELP Wanted: Construction Superintendent for multi-million dollar Hospital Project. Give names of similar projects supervised, references, salary expected. P-2629, Engineering News-Record.

MECHANICAL ENGINEER — Familiar latest developments radiant heating, air conditioning, ventilating and plumbing. Engineering in progressive Chicago architectural office at top salary for right man. Submit qualifications and record. P-2603, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

AGENTS WANTED. A progressive manufacturer of high-efficiency heavy duty industrial floors and flooring materials and protective coatings offers an attractive sales opportunity to established manufacturers agents having a following in the industrial field. Generous commissions and thorough advertising support. Describe your background and experience in letter to RW-2363, Engineering News-Record.

EMPLOYMENT SERVICE

WANTED — EXECUTIVES-Engineers-Designers-Draftsmen also Recent Graduates all lines. Architects, Chemists and Steel Men. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

ASPHALT SUPT. Foreman, Road-Plant-Shop; estimator, purchases, manager, etc. 20 years experience, City-State, macadam, gravel, concrete, plant mixes, penetrations, stabilization etc. Available January. PW-2646, Engineering News-Record.

BUILDING CONSTRUCTION Superintendent or General Superintendent 25 years experience. Thoroughly familiar with all types of Building Construction. References. E. Harold Bowen, General Delivery, Camden, Delaware.

CHIEF ESTIMATOR capable of managing estimating department for general contractor engaged in the construction of Commercial, Industrial, Public or Governmental buildings; available thoroughly experienced in Quantity Survey, Pricing General and Sub-Contract Work, Job Costs, Construction Methods and Analysis of Sub-Bids. PW-2638, Engineering News-Record.

CHIEF STRUCTURAL Engineer — Graduate, Age 56. Twenty-nine years experience in design and construction of industrial buildings, bridges, marine and heavy engineering structures; administration of contracts; client relations; field and office supervision. Now employed. Desire permanent connection in New York Metropolitan area. PW-2592, Engineering News-Record.

CIVIL ENGINEER, grad. 26, 3 years railroad heavy construction experience including layout, inspection, quantity estimates. Desires position with general or building contractor that will enable broadening of experience into cost, pricing, expediting. Prefer Florida location. PW-2597, Engineering News-Record.

STRUCTURAL-ENGINEER, age 36, graduate, licensed Washington State. Eleven years experience—all types of reinforced concrete, steel and timber structures. PW-2478, Engineering News-Record.

SUCCESSFUL TOP Monumental building and heavy construction man presently in charge of all work for internationally known long established construction company desires immediate change. PW-2585, Engineering News-Record.

(Continued on page 123)

A COURSE OF INSTRUCTION BY MAIL IN

STRUCTURAL ENGINEERING

Fortieth Year

OUR COURSES HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations

- Complete Structural Engineering Course.
- Public Works Structures.
- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION

College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

WANTED . . .

CONSTRUCTION SUPERINTENDENT

Assignment-Northeast Canada
Salary—from $10,000

Contract Requirements:—Minimum of 20 years in construction field. Previous foreign construction experience preferred. Engineering background helpful. Must be a good organizer able to layout work for Canadian labor.

Write and furnish full information regarding education, training, chronological details of experience. Age, salary expected, references. Small photograph and availability.

No applications considered without foregoing information. All replies will be considered strictly confidential.

P-2648, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WATER POLLUTION CONTROL ENGINEERS

3-5 years experience related to treatment and disposal sewage and industrial waste plus degree in engineering or additional qualifying experience. Must be eligible for Calif. State license. Positions in Calif. state government. Starting salaries $5496 and $6360 per year. Official applications must be filed by February 23.

Write now to Dept. WP,
Recruitment Section

STATE PERSONNEL BOARD
1015 L St., Sacramento 14, California

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh General Contracting firm. Must be thoroughly experienced in Commercial, Industrial, and Institutional building construction. Equal emphasis is placed on pricing as well as quantity takeoff. Salary limited only by applicant's ability and experience. Submit information stating experience, education, age, and availability. Replies confidential.

P-2153, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

Due to expansion we are in need of Experienced Bituminous Paving Personnel for Simplicity S-100 Asphalt Plant—

OVER-ALL SUPERINTENDENT
FOR HIGHWAY AND AIRPORT
ASPHALT PAVING
PLANT FOREMAN
STREET FOREMAN
BARBER-GREENE OPERATORS
CRANE OPERATORS
MAINTENANCE MEN
ASPHALT RAKERS

Must be competent to Handle Large Tonnages, Manage Personnel, Supervise Maintenance of Equipment. Salaries on Basis of Ability.

ALL INQUIRIES WILL BE TREATED CONFIDENTIALLY

NELLO L. TEER COMPANY
Contractors
Durham, N. C.
P. O. Box 1131 Tel. Day—6991

STRUCTURAL ENGINEER

Graduate Engineer with 10 or more years experience in the design of reinforced concrete structures.

For Work on Guam

Send complete record of background to:

PACIFIC ISLANDS ENGINEERS
Frederic R. Harris, Inc.
Blanchard & Maher
Keller & Gannon

Ferry Bldg. San Francisco, Calif.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 41 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

Additional Position Vacant Ads on page 122

ENGINEERS
DESIGNERS & DRAFTSMEN

Electrical, Mechanical
Structural & Hydraulic

Reinforced Concrete
Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hydroelectric Power Plants
Electrical Transmission & Distribution

CHAS. T. MAIN, Inc.
80 Federal Street — Boston 10, Mass.

SALES MANAGER
WANTED

Prominent mid-western manufacturer of construction equipment has a position available as sales manager for one of its product lines consisting of medium to heavy roadbuilding and excavating machinery. If you have had sales experience in this field . . . can show a successful record demonstrating the executive ability necessary to efficiently manage a sales office and field sales force . . . are able to administer and sales promote a dealer organization of over 200 dealers to a continuing high level of activity in the never ending search for business . . . and are looking for a challenging opportunity, please get in touch with us.

P-2462, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGNERS
and
DRAFTSMEN

Permanent positions available with long established utility for men exp. in reinforced concrete, electrical, heating and piping. 37½ hrs, 5 days. All employee benefits. Location—Phila.

American Water Works Service Co.
121 South Broad St. — Philadelphia 7, Pa.

ENGINEERS
Chemical - Mechanical - Piping - Process

Long term openings in permanent offices located at Cleveland, Ohio and Frederick, Maryland offering good salary plus overtime (forty eight hour week) for qualified Engineers, Group Leaders and Designers experienced in one or more of the following phases of industrial plant design:

Process Piping
Instrumentation
Process Equipment Layout
Packaging
Air Conditioning
Plumbing
Tanks and Vessels
Boiler Houses
Plant Layout
Conveyors
Heating and Ventilation
Refrigeration
Sprinklers
Water Treatment

Limited number of openings for Estimators experienced in Mechanical and Chemical installations as well as building construction.
Also have a number of openings in our Cincinnati and New York City offices for similar type personnel.

Excellent working conditions with paid vacations, sick leave plan and participating Group Insurance Program.
Please submit complete resume stating experience, education, salary required and date available to:

The H. K. FERGUSON COMPANY
Engineers and Builders
FERGUSON BUILDING — CLEVELAND 14, OHIO

HYDRO-CONSTRUCTION ENGINEERS

Hydro-Construction Engineers with 10 to 15 years experience on hydro-electric power plant construction, wanted by large engineering and construction organization. Also, position available for Assistant Hydro-Construction Engineer. College graduates preferred. Location Pacific Northwest. Submit resume of experience; salary desired, and date available.

P-2355, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

Permanent Positions Open to
ENGINEERS

. . . after training at
full-time pay . . . as
Consultants in
Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.
Write complete qualifications to:
P-2447, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED
ENGINEERS

The Tennessee Valley Authority wants Civil, Structural, Mechanical, Electrical, and Office Engineers and Estimators. The work is design and construction of large steam-electric and hydroelectric projects and transmission systems. Salaries start at $3600, $4350, and $5150 for 40-hour week. Some work is scheduled more than 40 hours and pays overtime. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. Design and estimating jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineering jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky.

Write the
TENNESSEE VALLEY AUTHORITY
Division of Personnel
Knoxville, Tennessee

ENGINEERS

for design and construction of several major municipal projects. Starting Salaries: $3707, $4314, $5334, $6143, $7036 per year. Write

DETROIT CIVIL SERVICE COMMISSION
735 Randolph St. — Detroit 26, Mich.

CORROSION ENGINEERS

Corrosion Engineers with minimum of three or four years experience in corrosion investigations and design of cathodic protection on pipe lines and lead cables in country and city networks. Must be graduate electrical engineer (or equivalent.) Work involves extensive travel, with headquarters in New York City. Only applicants with above qualifications will be considered. Give full details of education and experience, and references, in application.

P-2333, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

LIGHTING ENGINEER

Experienced lighting engineer, capable design, selection and application of lighting for generating plants, electric substations, industrial plants and office buildings. Applicant should be qualified or interested in training for handling of all technical problems related to lighting engineering. Location, New York City. Please furnish complete information including age, education and experience record.

P-2334, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

POSITIONS WANTED
(Continued from page 121)

CONSTRUCTION ENGINEER age 43, free to travel. Estimating, purchasing, cost and material control—office and field supervision. All phases of construction management. Past associations with nationally known contractors and architects. PW-2566, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, age 42, 20 years construction experience Bldgs., all types schools, City bldg., water plants, sewer disposal and factories. Have good record as a good organizer of men, understand costs of labor and material. Not afraid of long hours and work. Can give good references. Wish to locate in Southwest U.S.A. PW-2467, Engineering News-Record.

ENGINEER — SENIOR. Electrical, extensive utility power system design, construction, operating and maintenance experience. Desires responsible position with private or public utility or manufacturing Co. Best references. PW-2647, Engineering News-Record.

ESTIMATOR-TWENTY Years experience, pricing, buying, handle sub-contracts, job management. Familiar CP F.F. Contracts. Available January. PW-2535, Engineering News-Record.

PROFESSIONAL ENGINEER N. Y. State A.B. & C.E. Degree; Age 33, family, 2 yrs. design & construction—sanitary; 4 yrs. teaching—mechanics, structural Design, R.C., Surveying in leading Eastern College. Desires research, development or construction planning position on Eastern Seabord. Available Feb. PW-2513, Engineering News-Record.

PROJECT MANAGER available successfully managed eighthly millions of governmental fee and lump sum contracts preceding and during World war two, capable of completely organizing and managing all departments required to successfully complete fee or lump sum contracts. Qualified Engineer, Estimator and Construction Superintendent. PW-2641, Engineering News-Record.

REGISTERED PROFESSIONAL Engineer—57 years old — 2 degrees civil engineering — 30 years design and construction experience: bridges, highways, buildings, and river and rail terminals. Will have to retire in 5 years—can retire now. Only attractive offer considered—worked for experience — want money now! South America, Europe or U. S. PW-2642, Engineering News-Record.

BUSINESS OPPORTUNITY

Established Engineering Business
profitable and long established Civil Engineering and Surveying practice in suburb of New York City. Offering includes owner's house and complete record of 35 years operation. Owner, wishing to retire, will make terms for payment over period of time. BO-2537, Engineering News-Record.

AVAILABLE

Services of Architectural Firm practicing in San Francisco for 25 years. Available for correspondent or resident representative for private firms having Defense Building Contracts on West Coast. Office experienced in Public building and Government paper work. Professional record and references on request.

RA-2543, Engineering News-Record
68 Post St., San Francisco 4, Calif.

WANTED

Large engineering firm wishes to acquire several complete plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence.

Box 1206
1474 Broadway New York 18, N. Y.

WANTED

1—ELECTRIC OPERATED SHOVEL

½ cubic yard capacity—220/440 V., 3 phase — 60 cycles AC.

MAHONEY-CLARKE, INC.
217 Pearl Street New York 38, N. Y.

WANTED

Pioneer 412-VW Screening and washing plant or equal.

W-2623, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS INVENTORS
READ THIS AD:

Nationally known manufacturer wants to buy outright or manufacture on royalty basis, your new design on lightweight steel open web bar joists. New shapes no problem. What have you to offer? Will deal direct or through your representative.

CWW-2599, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

TRADE WITH BAUER

BUY - SELL - TRADE your
COMPRESSOR VACUUM PUMP STEAM BOOSTER
L.W.BAUER

FOR SALE

Bucyrus-Erie Mdl. 54B Shovel & Drag Lima Mdl. 802 Dragline Frehaut Lowbed Trailer 50 Ton & Sterling Diesel Tractor. Trailer has 2,000 miles on it.

FS-2556, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

FOR SALE

ELEVATED STEEL WATER TANK

50,000-gal. capacity, hemispherical bottom, 85-ft. tower, 6-in. riser. Good condition. Buyer to dismantle and remove from premises.

THE CORSE PRESS, INC.
Sandy Creek, N. Y.

FOR SALE

TRUCK MIXERS

3—Used 7-YARD JAEGER Horizontal Truck Mixers, mounted on Model FP MACK Trucks ..... $2,500.00 EACH

FS-2622, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

FOR SALE

Marion Model 7200 Dragline

135' boom Fairbanks-Morse 6-cylinder diesel engine with electric swing. Machine in excellent condition, immediately available, location, Wyoming.

FS-2602, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

- WANTED -

NEW TRACTORS — International and Caterpillar. With or without angledozer.
GAR-WOOD WINCH—To fit TD-14 & TD-18 International.

Reply to:
AUBE EQUIPMENT
360, Craig St. W, Room 310, Montreal, Can.

FOR SALE

3—Vilter Ammonia Compressors

Size 15x15 Horizontal Duplex Units
Excellent Condition Throughout
Complete With Electric Motor & Controls.
Write or Wire
OZARK DAM CONSTRUCTORS
MOUNTAIN HOME, ARKANSAS

WANTED

Asphalt Plant, capacity 100 ton per hour, 2 ton mixer, semi-portable, Madsen or equal, late model.

W-2626, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR SALE

1—Northwest 80D Serial No. 7350, Combination Shovel, Crane and Dragline, with 100 foot boom, 15 foot jib and fair leads. Murphy Diesel Engine.
1—Caterpillar D8 Angledozer Serial No. 2U1079
1—Caterpillar D8 Angledozer Serial No. 2U469
1—Caterpillar D8 Angledozer Serial No. 8R1323
1—Caterpillar D8 Angledozer Serial No. 1H2961
1—Caterpillar R4 Angledozer Serial No. 6G1165SP
2—Euclid Tractors Model 6FDT with Bottom Dump Wagons
1—Super C Tournapull Serial No. C1T2837CIF with LP Scraper, Cummins Diesel Motor

These Machines have all been overhauled within the last year and are in Excellent Condition and are real buys.

SANCTIS CONSTRUCTION, INC.
410 Marlow St. Pittsburgh 20, Pa.
Walnut 1-9000

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Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented

Midwest Representative: W. & L. E. Gurley
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Manufacturers of Sterling Transits and Levels
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SPECIALIZED REBUILDING

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All makes and models expertly repaired in modern shop. All work guaranteed.
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REPAIR
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QUALITY REPAIRS

by the makers of the
WORLD'S QUALITY SURVEYING INSTRUMENTS
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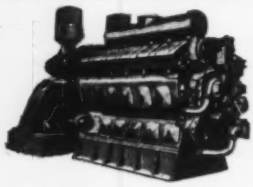
IMMEDIATE SHIPMENT

UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGE



A PARTIAL LISTING OF OUR INVENTORY

KVA	Make	Model	HP	RPM	KVA	Make	Model	HP	RPM
1875	Fairbanks Morse	33F16	2000	300	375	Enterprise	DBG-6	450	450
1420	Fairbanks Morse	38D8⅛	1600	720	330	Superior	RNA	396	514
1250	General Motors	16-278A	1600	720	312	General Motors	8-268A	450	1200
937.5	General Motors	12-567	1080	720	312	Clark	MD-4	375	327
625	Alco	6-12¼x13T	750	600	125	General Motors	3-268A	150	1200
425	Baldwin	VO-6	510	450	75	General Motors	6043C	90	1200
400	Buckeye	80	480	600	62.5	Int'l Harvester	UD-18	76	1200

D.C. UNITS ALSO AVAILABLE

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DIESEL DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

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Sales—Rental
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15 CFM	LINDSAY (Gas) 2 Pneu
25 CFM	LINDSAY (Gas) 2 Pneu
30 CFM	WORTH. (Gas) 2 Pneu
30 CFM	LINDSAY (Gas) 2 Pneu
60 CFM	INGERSOLL (Gas) 2 Pneu
66 CFM	WORTH. (Gas) 2 Pneu
105 CFM	WORTH. (Gas) 2 Pneu
105 CFM	WORTH. (Gas) 4 Pneu
160 CFM	WORTH. (Gas) 2 Pneu
160 CFM	WORTH. (Gas) 1 Pneu
210 CFM	WORTH. (Gas) 4 Pneu
315 CFM	INGERSOLL (Gas) 4 Pneu
315 CFM	WORTH. (Gas) 4 Pneu
315 CFM	INGERSOLL (Oil) 4 Steel
315 CFM	Le ROI (Gas) 4 Pneu
500 CFM	WORTH. (Diesel) 4 Pneu
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RENT—SELL—BUY

Stationary—Portable
Electric—Steam—Gas—
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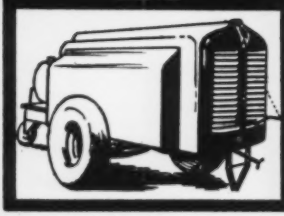
All sizes—All makes

SELECT REBUILTS—AMERICAN

American Air Compressor Corp.

Dell Ave. & 48th St., North Bergen, N. J.
SINCE 1902



PORTABLE CRUISING PLANT: Pioneer 40-Y, capacity 100 tons per hour to 1-¼", diesel powered, New 1949, slightly used.

CRUSHERS, REDUCTION: 1—Symons 2 ft. with coarse bowl, without motor. 1—Symons 3 ft., Short Head with fine bowl, and one Traylor type TY, 2'4" with 8" opening, both with 75 H.P., 440 volt motors, V-belt drive.

CRUSHERS, JAW: Various makes and sizes 12" x 15" to 48" x 60".

DRYERS or KILNS: 2—Allis Chalmers 10 ft. x 90 ft., heavy duty, plate thickness 22.95 lbs. per sq. ft., complete and with or without coal fired Furnace, Western Precipitation Dust Collector, Clarage #11 Exhauster, Motors, control equipment, etc.

FEEDERS: Traylor heavy duty Apron Feeder size 60" x 15 ft. 2—Jeffrey 5 ft. x 9 ft., heavy duty type, Vibrator Feeders, with three extra heavy power units on each, 3 phase, 60 cycle, 440 volt.

DIESEL MOTOR: 122 H.P. Caterpillar D13000 complete with clutch, V-belt pulley and spare parts. Excellent condition.

DRAG SCRAPERS: 1—Sauerman 2 yd. Drag Scraper outfit complete, without 75 H.P. motor. 1—Sauerman ⅜ yd. capacity complete with 20 H.P. motor. 1—Sauerman 1-½ yd. capacity complete with 60 H.P. motor.

MINE HOISTS: Vulcan double drum 8' dia., 4 ft. face, one drum clutched, 1-½" rope, 750 FPM, 200 H.P., 2200 volt motor and all control and safety devices, with or without head frame, height 55' and 8' dia. steel sheaves. 1—Double drum 14 ft. dia., 6'10" face, 1000 H.P., 2200 volt, complete. 1—Vulcan single drum 6'6" dia., 6'8" face, 1-¼" rope, 1450 FPM, 150 H.P., 2200 volt motor and all control equipment. Also, single and double drum 100 H.P. to 1500 H.P.

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Lansdowne, Pa.

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CLAMSHELL & ORANGE PEEL BUCKETS

Sizes: ⅝ to 2½ cu. yd. capacity.
Good used condition.

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25 ton Browning Loco. Crane new 1942
30 ton Ind. Brownhoist Gas Loco. Crane
Two Colby 50 ton Gantry Cranes
Manitowoc 2000 Crane 1½ yd. 80 ft. bm.
65 ton Whitcomb Diesel Elec. Locomotive
8¼ x 10 Clyde 3 Drum Steam Hoist
Rex 160 Single Pumpcrete new 1949
Northwest 80D 2½ yd. Diesel Combination
60 HP American 3 Drum Gas Hoist

MISSISSIPPI VALLEY EQUIPMENT CO.

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Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
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Phone Valentine 4740

SHOVELS—CRANES—DRAGLINES
Northwest Model 80-D 2½ yd Diesel shovel.
Northwest 26 1½ yd Diesel Shovel. New 1949.
Northwest 26 1½ yd Diesel Shovel/Backhoe.
P&H 255A 20 Ton Truck Crane. Excellent.
Koehring 304 20 Ton Truck Crane. Excellent.
Michigan TLDT Truck Crane 12 Tons. 8m 50'.
Lorain 820 1¼ yd. Shovel-Crane, Diesel, 1947.
Lorain 820 Diesel Drag, 70' boom.
Lorain L50 I yd. Diesel Shovel, new 1950.
Lorain Motocrane MC-14. Practically new.
Michigan ½ yd. Truckcrane-Backhoe-Crane-Drag.
Koehring 605 1 yd. Diesel Shovel.
Lima 1201 std. Diesel Shovel, 3½ yds.
Lima Paymaster I yd. Diesel Shovel.
P&H 855, 2 yd. Diesel Shovel.
Link-Belt K-520, Diesel Shovel, 3 yds.
Link-Belt K-595 Dragline, 2½ yds. Diesel.

CONCRETE PLANTS—BINS & SILOS
Erie 492 barrels cement 160 yd. agg. Complete.
B-K 450 barrels cement 100 Ton agg. Complete.
Butler 100 ton 3 compt. agg. 3 yd. batcher.
Butler 310 Bbls. cement No. 5 bin weigh batcher.
B-K 400 Bbls. Cement, 125 Tons Agg. Complete.
Aggre. 150 yd. 3 compt. bin. Butler 1 yd. batcher.
B-K 110 bbl. bulk cement bin Richardson scales.
F-S cement bin 600 bbls. weigh batcher, compt. Exc.

ASPHALT PLANTS
Hetherington-Berner Heavy Duty Moto-Paver.
Model M-20 Bituminous Monotrol Plant.
Cedar Rapids Travel Mix Plant 100-150 tons.
B-G Model 848 "Travel Plant".
B-G 842 Port. Utility Plant. Complete.
Littleford 1000 gal. Distributor on Int. Truck.

STIFF LEG AND GUY DERRICKS
Steel 35' stiff leg derrick 100' boom.
American 20 ton stiff leg derrick 90' boom.
Stiff leg derrick 15 ton 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.

CONCRETE MIXERS AND PAVERS
Koehring 34-E Twin Batcher Paver.
2 Ransome 34-E Dual Drum Pavers Diesel.
Rex 28-S Builders Mixer, Elec. New 1947.
28-H Ransome Builders Mixer. Elec.
Koehring 56-S stationary Mixer. New '50.

ROAD FORMS
Blaw-Knox and Heltzel 8100 ft. 9"x9"; 10.000 ft. 8"x8" and 3000 ft. 10"x8".

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30 Church St. New York 7, N. Y.
Cable RICHWALSH COrtlandt 7-0723-4

FOR SALE

H Beams & Bearing Piles

100 Tons	8"	H	31#	40'	In Stock
100 Tons	8"	BP	36#	40'	In Stock
100 Tons	10"	BP	42#	40'	In Stock
100 Tons	12"	BP	53#	40'	In Stock
100 Tons	12"	H	65#	40'	In Stock

WE ARE NOW BOOKING ORDERS FOR H BEAMS AND BEARING PILES FROM 6" TO 12" IN ALL WEIGHTS.

6 Week's Shipment From Mill

WRITE WIRE PHONE

ALBRO STEEL COMPANY

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Stillwell 4-2720
Stillwell 6-5448

Used Shovel Attachments

FOR SALE

3—NORTHWEST Model 25
3—NORTHWEST Model 6

HODGE & HAMMOND, INC.

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LOCOMOTIVE
1—Plymouth 6 Ton Gas—36" Ga.—Like New.
1—Brookville 10T-36" Ga. Diesel—Like New.
2—Whitcomb 15 Ton, 36" Ga.—Diesel.
1—Davenport 10T-36" Ga. Diesel.
1—Brookville—15 Ton—Diesel—Stdy.—Ga.
Plymouth—70 Ton—Std. Ga.—Propane Electric.
1—Plymouth 35T, Gas, Std. Ga., Very Good.
1—Whitcomb 6 Ton—36" Ga.—Diesel.

LOCOMOTIVE CRANES—STEAM
1—Ohio—30 Ton Coal Fired. Excellent.
Industrial—50 T. 1947—Like New. Boom 120.
Burro Mod. 15—5½ Ton—Gas.
Burro Mod. 20—5½ Ton—Gas.

MISCELLANEOUS
24 Hopper Cars—15 Ton—36" Ga.
1—American 3-Drum Gas Hoist—185 HP. Like New
1—Mundy D. D. Elect. Hoist—300 HP. 2200/3/60.
1—Flory D.D. Slope Hoist—150 H.P.—3/60/220.
Wellman D.D. Mine Hoist—700 H.P.—3/60/2200.

R. H. BOYER

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AIR COMPRESSORS

Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
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4' x 6' Kennedy Van Saun single deck.
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1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

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Lorain L-50, 1-yd. diesel. New condition.
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Brownhoist 1-yd. gas shovel and crane.

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Lorain 40A shovel attachment complete.
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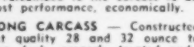

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20"	4	1/8"	1/32"	28 Oz.
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24"	5	1/8"	1/32"	28 Oz.
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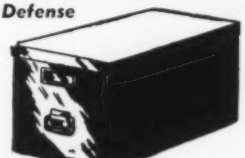

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1 P & H Dragline, ½-yd.
1 Byers 65 Crane, ½-yd.
2 Osgood 200 Cranes, ½-yd.
1 Bay City 15A Truckcrane, ½-yd.
2 Michigan TLDT 20 Truckcranes, ½-yd.
1 Link-Belt MS70 Cruiser Crane, ½-yd.
1 Link-Belt HC70 Truckcrane, ¾-yd.
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1 Northwest 25 Crane, ¾-yd.
1 Koehring 304 Crane, ¾-yd.
1 Link-Belt LS85 Crane, ¾-yd.
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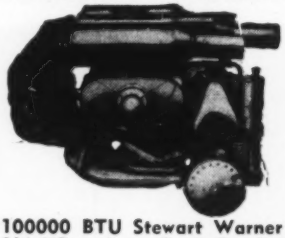

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Continuing the long-standing company policy of building for minimum maintenance and maximum durability, engineers of the Freedom-Valvoline Oil Company, Freedom, Pa., specified genuine wrought iron pipe for the refinery chilling coils. This sound specification is supported by company records of similar genuine wrought iron pipe installations in the plant which have served continuously for 20 years without replacement.

The new coils, fabricated from 2" extra heavy Byers Wrought Iron pipe, carry a brine solution for cooling the oil in the chilling tanks. Processing of the cold oil removes the wax.

Genuine wrought iron has been favored for condenser service for decades, and users report some remarkable service records. In many instances, other piping or tubing materials had also been used, giving a direct comparison of service under identical conditions, and genuine wrought iron was usually reported as lasting two or three times as long.

If you are using low-first-cost material in your condensers and are bothered by frequent repairs, you may find a source of substantial savings by using genuine wrought iron. Its widespread use as a "maintenance-stop" in this highly corrosive service confirms its ability to stay on the job longer at lower cost per year.

Our booklet, THE ABC's OF WROUGHT IRON, tells the how, why, where of this time tested material. We'll be glad to send you a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

Why Genuine Wrought Iron Lasts

This notch-fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

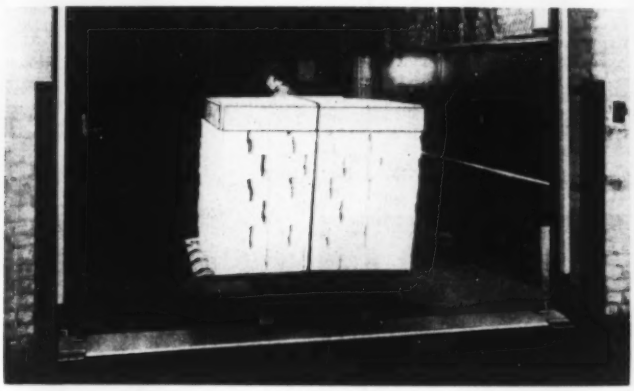
TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

Flat plastic laminate replaces glass

A flat plastic laminate known as Alsynite Plasta-Glass is being produced on the West Coast. Usable for a wide variety of building purposes, its shatter-proof qualities are an important factor. The manufacturer claims that it eliminates glare by diffusing the light rays, thus helping to provide more light in usually dark areas. Heat transmission tests are reported to indicate that Alsynite permits only about half as much heat transmission as glass. Easy to install, light weight, and capable of great load strength, a sq ft weighs only about 8 oz.

Panels are highly fire-resistant and will not crack, craze, warp, sag or rot. It is ideally suited for sidelighting and skylighting in industrial and commercial buildings according to the manufacturer, Alsynite Company of America, 4670 De Soto Street, San Diego, California.



Elevator sills incorporate safety feature

When one of these new sills is installed on a freight elevator as shown above, it not only protects the car, pavement edge and nosings; but is also hooked up to the electric controls to prevent movement of the cage while loading or unloading. It contains two electric interlocks, becomes an integral part of the elevator and, riding in an upright position, prevents wheeled carts from rolling past the car edge while the elevator is in motion. Alexander Sill Co. 970 Milwaukee Ave., Chicago 22, Ill.

Torque converter transmission

A three-stage hydraulic torque converter transmission has been developed which is said to eliminate 99 percent of forward gear shifting on the toughest grades—and which, combined with engine drag, can perform 90 percent of the braking. Successfully field tested on the Mesabi Iron Range, the new unit is known as the Twin Disc Model DF Direct Drive Hydraulic Torque Converter.

The five-speed transmission provides a reverse gear, a power take-off drive for the dump body and a low gear ratio for unusually bad holes. Fourth speed of the transmission is a direct drive and it is in this ratio that the torque converter has done most of its payload upgrade hauling.

The automatic torque multiplication gets around the usual cycle of declutching, shifting of gears, and clutching. Trucks pull away from a loading shovel in the gear ratio they will use up the entire grade. The automatic torque converter brake, designed to exert braking effort in excess of engine rated horsepower, is rated to perform 90 percent of the braking job in returning to the bottom of a pit, according to the manufacturer. This brake reduces the air demand on the engine air compressor and prolongs wheel brake life according to conclusions of several tests.

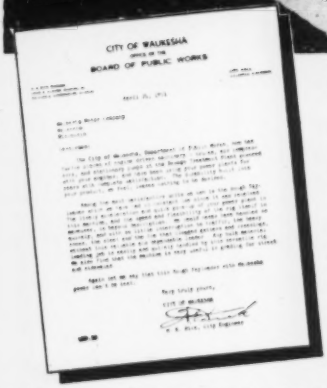
The operator's control valve is equipped with four selections: (1) neutral, (2) torque converter drive, (3) mechanical drive, and (4) combined engine and hydraulic braking. Twin Disc Clutch Company, Racine, Wisconsin.

New air hammer weighs only two pounds

This light hand tool weighs just slightly over 2 lb., but has been designed so that it will perform medium-heavy duty work in general shop and maintenance operation. Known as the G-200 air hammer, it works at 120 psi and strikes up to 6,000 blows per min. with maximum force. This may be metered to any lower speed or striking power by means of a simple finger trigger action, according to the manufacturer. A safety feature is the newly patented 3-point ball-bearing chuck which locks tools in working position and eliminates hazard of tool ejection. The only moving part is the driving piston. Sixty-six different tools are regularly available for use with this

(*Continued on next page*)

...you should hear what the home-town folks say about 'em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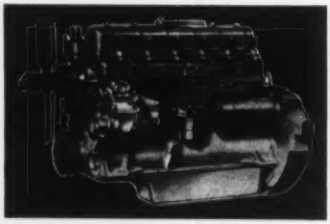
Payloader in use by City of Waukesha is powered by a **Model DLCA Waukesha Diesel Engine.** (The truck has a Waukesha Engine, too.)

● The home-town folks are not easily impressed. They know you and your product, too. Save your sales talk—they pay off on performance.

This comes to you direct—from the home of Waukesha Engines. And it's Mr. W. E. Dick, City Engineer, talking—"The City of Waukesha, Department of Public Works, now has twelve pieces of engine-driven machinery . . . powered with your engines. Among the most satisfactory units we own is the Hough *Payloader* which we have had in constant use . . . the lively acceleration and quick pick-up of your power plant in this machine, and the speed and flexibility of itself in maneuver, is beyond description . . . (it) handled so quickly, and with so little interruption to traffic, the heavy snows, sleet and ice that clogged gutters and crossings. Any bulk material loading job is easily and quickly handled by this versatile rig . . . also very useful in grading. This Hough *Payloader* with Waukesha power can't be beat."

Payloaders—tractor-shovels that dig, load and carry all types of material—are made by The Frank G. Hough Co., Libertyville, Ill., who power them with Waukesha Engines. Mr. Dick can tell you why. He has "been using your (Waukesha) power plants for years with complete satisfaction. The durability built in, leaves nothing to be desired." Get Bulletin 1411.



WAUKESHA MOTOR CO., WAUKESHA, WIS.

New York • Tulsa • Los Angeles

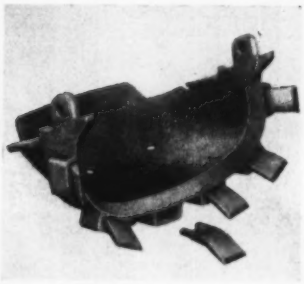
Model DLCA Waukesha Diesel Engine—six cylinders, 3¼-in. bore x 4-in. stroke, 265 cu. in. displacement, 85 maximum hp at 2600 rpm.

WAUKESHA
Diesel **POWER**

136

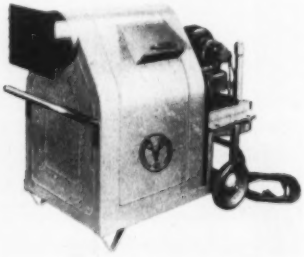
New products . . .

hammer and blanks are offered for making individual tools for any specialized tasks. PNEUMATIC TOOL DIV., SALSBURY CORP., 1161 EAST FLORENCE AVE., LOS ANGELES 1, CALIFORNIA.



Tap-in teeth for Trenchliners

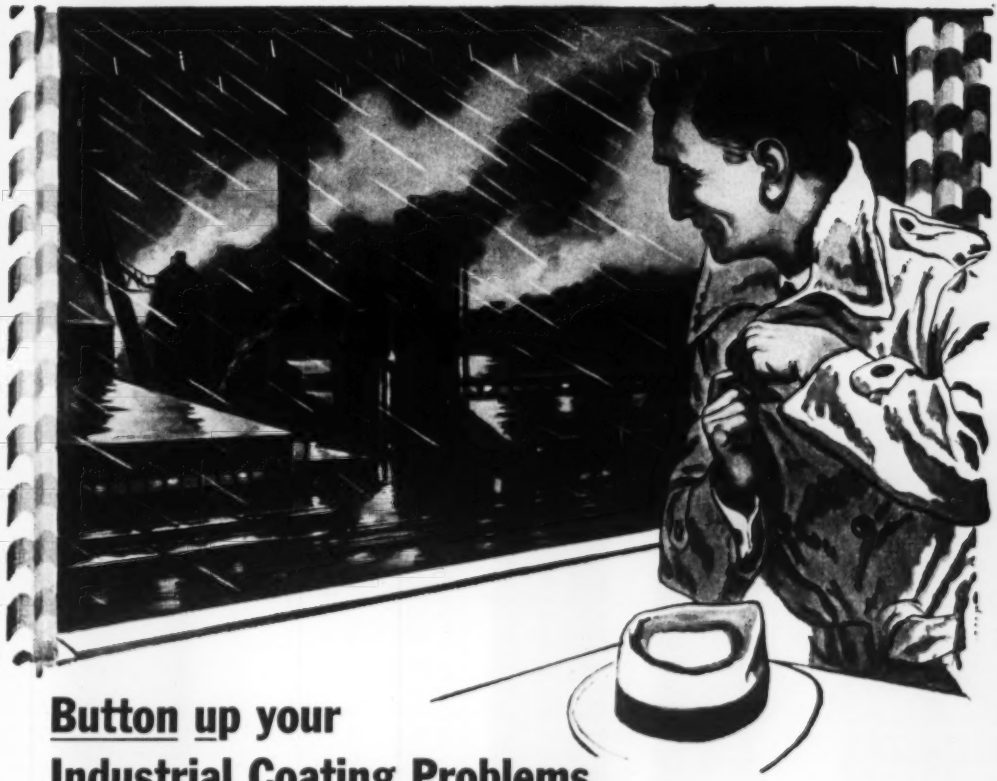
The development of tap-in bucket teeth as standard equipment on all Trenchliners was recently announced by the manufacturer. The principal feature of the newly designed, self-locking tooth is the "easy-in, easy-out" time-saving replacement involved. The four sizes of Trenchliners provide a wide digging range for trenches; 5 to 72" in width, up to 17' in depth. These teeth eliminate the need for bolting or crimping edges to hold teeth in position. A precision fit taper locks the tooth firmly in place either on the bucket or side-cutter bars. Tooth holders are integrally cast with the bucket lip for positive tooth support. By welding small adapters to present buckets, Trenchliners of any age can be converted to use these new teeth. THE PARSONS COMPANY, NEWTON, IOWA.



New Master space heater

The first new model Master space heater has 200,000 btu output per hour and is known as the Master Hot-R-Nell space heater. Said to require no

(Continued on page 136)



Button up your Industrial Coating Problems with Flintkote's HYDRALT*

Here are coatings especially formulated to solve many of your industrial protective coating problems . . . and do it economically . . .

Flintkote Hydralt Asphalt Emulsions.

These versatile coatings, applied by spray, brush and trowel, form efficient barriers against dampness, weather, acid fumes and smoke. Use them on steel, concrete and insulation materials.

Flintkote HYDRALT Protective Coatings, for example, are a unique mineral colloid type of asphalt emulsion which creates a film reinforced within itself. They are durable. So durable, in fact, that many installations remain just as effective after *20 years.*

You'll find *many* advantages in specifying HYDRALT Protective Coatings.

HYDRALT Emulsions require no heating.
. . . Won't crack or check from cold.
. . . Are completely fire-safe and non-toxic.
. . . Won't sag or flow under heat.
. . . Are supplied in various consistencies, for every condition and application method.

Be sure and ask about our Asphalt Emulsions for your own use . . . and button up your industrial protective coating problems *for good.*

* T. M. Reg. U. S. Pat. Off.

THE FLINTKOTE COMPANY, *Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y.*

Atlanta • Boston • Chicago Heights • Detroit • Los Angeles
New Orleans • Washington
The Flintkote Company of Canada, Ltd., 30th St., Long Branch, Toronto, Canada

FLINTKOTE
Products for Industry

Maryland Firm Chose TIMBER TRUSSES

For the manufacturing firm that needs clear floor area and wants to build now, timber trusses are the ready answer. Pictured above is a typical manufacturing plant built in Laurel, Md., with timber bowstring trusses designed and fabricated by Rilco Laminated Products, Inc., St. Paul, Minn.

There's plenty of timber, and timber fabricators in all sections of the country can help you now.

Stores, markets, warehouses, garages, hangars and many other types of light and heavy structures are being designed in timber.

You have a choice of three popular types of timber construction — (1) Teco timber connector system, (2) Glued laminated timber, and (3) Lamella construction.

Specify timber — it's ready as usual for early delivery.

TIMBER ENGINEERING COMPANY, 1319 18th St., N.W., Washington 6, D. C.

Please send me FREE of charge "Design Manual for Teco Timber Connector Construction," and "National Design Specification for Stress-Grade Lumber and Its Fastenings," as recommended by National Lumber Manufacturers Association.

We plan to build a_____

NAME_____

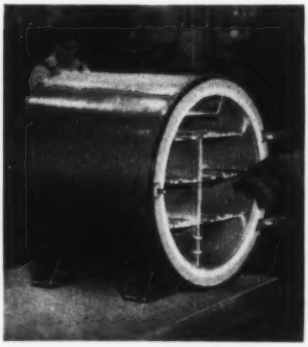
COMPANY_____

STREET_____ CITY_____ STATE_____

ENR

New products . . .

warm-up period, the hot air output is about 10,000 and 12,000 cfm and the air is directed downward toward the floor by special louvres. The space heaters burn kerosene or No. 1 or No. 2 fuel oil at the rate of about a gallon and a half per hour. It is recommended for general heating; thawing of material, equipment or working areas. It is also recommended for space or hot heating and for drying construction work. Mounted on rubber-tired wheels for quick portability, it weighs only 265 lb net and is provided with automatic shut-off. Thermostatic controls are extra. THE MASTER VIBRATOR COMPANY, DAYTON, OHIO.



Oven lowers moisture content of electrodes

Moisture absorption by mineral-coated electrodes results in faulty welds and expensive rework costs, and further, tons of these electrodes are scrapped each year because it is safer to throw them away than risk using them. Solution to this problem is a new DryRod Electrode Oven shown in the above picture. According to the manufacturer, this oven will accurately control the moisture to within .2%, the normal accepted U. S. Government standard for moisture content. Basically it is a cylindrical, compartmented sheet metal unit which is heated by an 840-watt element operating off 110 or 220 volt circuits. Fully insulated, the oven has a low heat loss which adds to its efficiency. A variable thermostat gives close control on temperatures up to 600° F. Dimensions of the oven are 22″ outside diameter, 25½″ long, with a capacity of 350 pounds of electrodes up to 18″ in length. PHILIP RODEN COMPANY, 1721 EAST LAKE BLUFF BOULEVARD, MILWAUKEE 11 WISCONSIN.

(Continued on page 139)

Have you tried PUMPCRETE® on your B-V-D's?

Rex Pumpcrete has proved the lowest cost concrete placement method on hundreds of bridges, viaducts and dams. *For Example:*

BRIDGES Pouring bridge piers in mid-stream is a fine example of cost-cutting Pumpcrete use. Pipe line is run out and into the piers. No heavy road needed to support trucks. No danger of preparatory structures being "washed out." When one pier is completed, pipe is merely extended to the next one. It is also used to pour bridge deck.

VIADUCTS—Pumpcrete is usually ideal for viaduct work because it can handle the job without disrupting traffic and can pump to a height of 120', eliminating need for towers. Here it delivers concrete to a viaduct pier from location on the opposite side of a rail yard. Pipe is laid in a shallow trench under the tracks.

DAMS Time after time Pumpcrete proves to be the most economical method for pouring dams and spillways. Preparatory costs are held to a minimum, and a steady, large volume flow of concrete is assured. On this job a single pipe line and light cableway handled all concreting for a 500-foot spillway and multiple arch bridge above.

PUMPCRETE
REDUCES DIRECT LABOR COST

Concrete is transported, elevated and placed in one operation. No buggying needed.

PUMPCRETE
REDUCES PREPARATORY COSTS

Pumpcrete and pipe line flexibility eliminate need for many access structures in road building and maintenance... trestling and scaffolding, etc.

PUMPCRETE
REDUCES "DEAD TIME"

Pumpcrete delivers concrete steadily... promotes smooth, steady job progress with no interference between various crews.

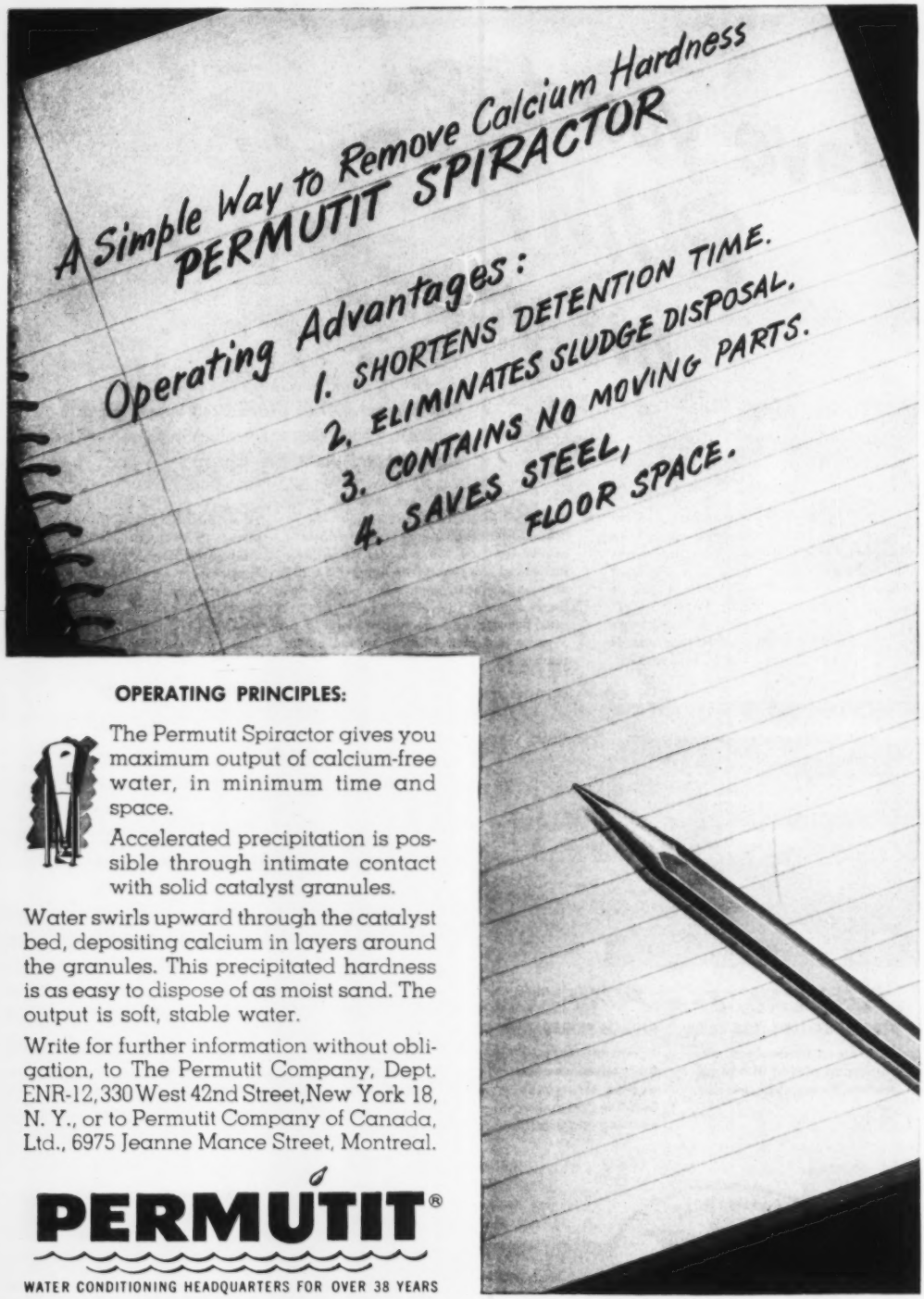
PUMPCRETE
REDUCES NON-PRODUCTIVE MOVING TIME

No need to move mixing equipment from place to place. Pipe line placement permits spotting of Pumpcrete in the one best location for concrete placement.

Ask your local Rex Distributor to give you the details of the many advantages of concrete by pipe line. Or, if you prefer, write to Chain Belt Company, 1633 W. Bruce Street, Milwaukee 4, Wis.

CHAIN BELT REX COMPANY®

CONSTRUCTION MACHINERY...


A Simple Way to Remove Calcium Hardness
PERMUTIT SPIRACTOR
Operating Advantages:
1. SHORTENS DETENTION TIME.
2. ELIMINATES SLUDGE DISPOSAL.
3. CONTAINS NO MOVING PARTS.
4. SAVES STEEL, FLOOR SPACE.

OPERATING PRINCIPLES:

The Permutit Spiractor gives you maximum output of calcium-free water, in minimum time and space.

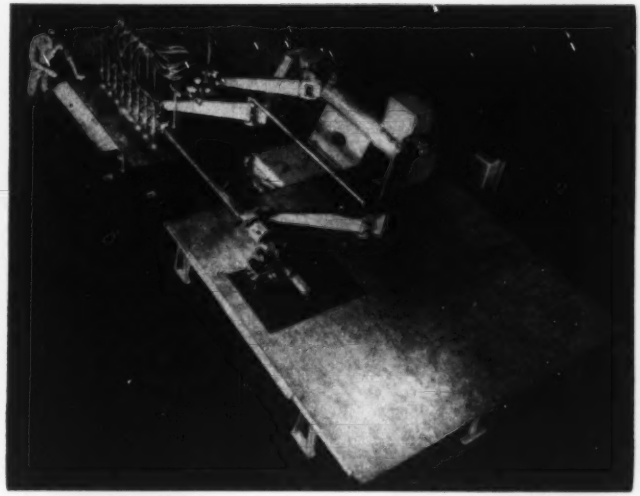
Accelerated precipitation is possible through intimate contact with solid catalyst granules.

Water swirls upward through the catalyst bed, depositing calcium in layers around the granules. This precipitated hardness is as easy to dispose of as moist sand. The output is soft, stable water.

Write for further information without obligation, to The Permutit Company, Dept. ENR-12, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

PERMUTIT®

WATER CONDITIONING HEADQUARTERS FOR OVER 38 YEARS



Travograph gas cutting machine

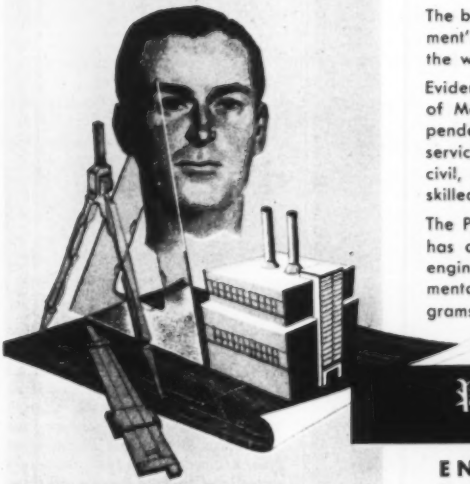
This machine operates on the pantograph principle, so that one or many cutting torches conform exactly to the movement of a tracer of which there are four types. With nothing more than a drawing or templet, this Airco machine makes equally practicable and economical the cutting of either one or a few parts, or identical parts on a quantity production basis. The manufacturer claims that precision, production line shape cutting can be accomplished only with a machine that provides a high degree of accuracy, such as their Travograph. The motor-driven carriage assembly travels on two steel rails between the tracing table and the cutting table shown above. The remote controls for carriage operation can be conveniently mounted on the operating bar. The torch or torches and the motor-driven tracer are mounted on the operating bar. Three tracer heads are available—manual, magnetic and spindle—and all are said to be quickly and easily interchangeable in the tracer body. AIR REDUCTION SALES COMPANY, 60 EAST 42ND STREET, NEW YORK 17, N. Y.

New Product Briefs

Sprayed coil dehumidifiers have been added to the present line of equipment manufactured by the **Kennard Corp., 1819 S. Hanley Rd., St Louis 17, Mo.** These units are available in a large number of sizes and are of galvanized construction with copper tube and copper finned coils for long life. They are said to offer the advantage of washed air at all times plus wetted surface of the cooling coil for better heat transfer and closer DB-WB

(*Continued on page 141*)

LEADERSHIP...The Result of Progressive Thinking



The big reason for America's industrial leadership is Management's studied practice of progressive thinking which points the way to orderly advance along sound, constructive lines.

Evidence of this is clearly indicated by the growing tendency of Management to utilize the specialized services of independent consulting engineering organizations which in a single service provide completely coordinated staffs of architectural, civil, chemical, electrical, and mechanical engineers highly skilled and experienced in their respective fields.

The Peter F. Loftus Corporation is such an organization and has over the years cooperated with the management and engineers of utilities, industrials, institutions, and governmental agencies in such vital matters as modernization programs, new plant designs, expansions and related projects.

Peter F. Loftus Corporation
ESTABLISHED 1923

ENGINEERING CONSULTANTS
First National Bank Building, Pittsburgh 22, Pennsylvania

For Utmost Security

IMPORTANT AMERICAN CITIES INSTALL

LOCK JOINT

CONCRETE PRESSURE PIPE

More than anyone else, those responsible for supplying water for domestic or industrial use appreciate the value of pipe lines which provide these four freedoms.

Freedom from:

- ★ Rupture or blow-out
- ★ Maintenance and repairs
- ★ Loss of carrying capacity
- ★ Corrosion or deterioration

The water works man who installs Lock Joint Concrete Pressure Pipe will have trouble-free pipe lines. The careful design of Lock Joint Pressure Pipe does not permit blow-out or rupture; its dense concrete walls are immune to tuberculation, corrosion or electrolytic attack; and its useful life has been estimated by competent hydraulic engineers at more than 100 years. Among Lock Joint's strongest supporters are the water works officials who have installed this type of pipe and who point to it as the most economical in their systems.

• • •

If you are quality minded yet cost conscious, specify Lock Joint Pressure Pipe, secure in the knowledge that you are receiving the best value the pipe industry can provide.

LOCK JOINT Reinforced Concrete PRESSURE PIPE

LOCK JOINT PIPE COMPANY
Est. 1905
P. O. Box 269, East Orange, N. J.
Pressure Pipe Plants: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. Casper, Wyo. • Denver, Col. • Kansas City, Mo. Valley Park, Mo. • Wichita, Kan. • Chicago, Ill. Rock Island, Ill. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. • Tulsa, Okla. Oklahoma City, Okla. • Beloit, Wis. • Isleta Rey, P. R.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

approach. The unit is said to be suited for use as an evaporative cooler for off-season loads.

A new paving template has been creating a great deal of interest in paving circles throughout the West and Middlewest. Furnished in various lengths to suit a job, the Wheeler template places four pieces of tapered steel strips 2 in. deep. They can handle up to 4-in. wide strips either straight or tapered, and the guide-clips are adjustable to hold strips up to ¾-in. thick. Manufactured and distributed by the **Wheeler Paving Accessories Co., 930 South Josephine St., Denver 9, Colorado,** they are said to make an absolutely straight joint which prevents irregular cracking of concrete.

A complete muffler group for the new diesel DW20 and DW21 tractors is offered by **Caterpillar Tractor Co., Peoria 8, Ill.** The new attachment will reduce engine exhaust noise, providing greater operator comfort and reduce annoyance for people living near job sites.

A new line of vibrators said to be air-cushioned, preventing metal-to-metal pounding, has been announced by the **Cannon Vibrator Company, 1111 Power Avenue, Cleveland 14, Ohio.** The new air-cushioning principle eliminates bolt breakage, greatly reduces general maintenance and increases vibrator life. Models range in weight from 9 to 140 lb; piston sizes range from 1¼ in. to 4 in. They are known as Style EM "Quiet-Type" vibrators.

A new type of **hand cleaner** called "Skin-Cote" is announced by the **Boyer-Campbell Company, 6540 St. Antoine Street, Detroit 2, Michigan.** When rubbed on the skin, it turns to a liquid and precludes the use of solvents and thinners which may be harmful to the skin as well as inflammable. It has been used successfully to remove such materials as gasket sealing compounds, rubber cements, paints and resins.

Safety-Flare plugs into the lighter of a car or pick-up and a strong electromagnet holds it securely in any position to the metal surface of a car while working on emergency repairs, flat tires, etc. It can also be used as a hand signal light for emergencies. Twelve feet of rubber cord are provided by the manufacturer, **A. G. Busch & Co., Inc., 2632 N. Central Avenue, Chicago 39, Illinois.**

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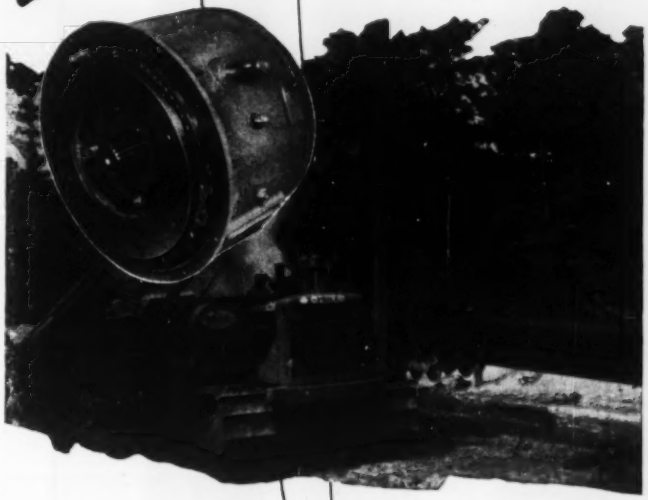
Less Guesswork ...more teamwork



LOWERING IN! That, say the men who know, is the *life or death* step in pipeline building. For, with two or three side-boom tractors working together, all booming out on one long string of pipe, one mischance can topple over a tractor, undo days of work in one minute, can kill a man caught in the melee.

That's the reason why more and more pipeline builders are switching to tractors equipped with Twin Disc Hydraulic Torque Converters, like the Allis-Chalmers HD-20, with a Tractomotive Side-Boom.

They know that the torque converter frees the operator from gear-shift guesswork, lets him concentrate on his boom work. The Twin Disc Converter delivers the power smooth and cushioned. With it, the tractor eases into motion so smoothly there's no tendency for tracks to dig in. Full hp is available at even 1/10 mile per hour.

And most important of all, the converter automatically and instantly matches torque to demand to let the operator *concentrate* on team-work, *not* on gear-shift guesswork. For all these advantages, be sure your next tractor is equipped with a Twin Disc Hydraulic Torque Converter. Complete information is contained in Bulletin 135-D.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin · HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES: CLEVELAND · DALLAS · DETROIT · LOS ANGELES · NEWARK · NEW ORLEANS · SEATTLE · TULSA

For road repairs, you need the right kind of kettle

this

not this

Same way with trucks. Get one that fits the job!

Thrifty power for rugged jobs... with dependable DODGE "Job-Rated" TRUCKS

Give a Dodge "*Job-Rated*" truck the rough treatment your job demands . . . and watch it perform with *low-cost dependability* year after year!

Plenty of thrifty power! For example, 2½-ton models have a rugged, powerful engine that's rated at 114 h.p. And, to assure even greater power with top economy, high-tonnage models (2¾-ton and up) are offered with twin carburetion and exhaust system.

But that's not all! Back a Dodge into a tight spot—see how easily and sharply it turns, how easily the steering wheel turns! New worm-and-roller steering gears on many models are just one of many reasons why Dodge "*Job-Rated*" trucks are easier to handle.

Then consider advantages like the new moistureproof ignition system and new high-torque capacity starting motor—and you'll know why new Dodge "*Job-Rated*" trucks are more dependable, even in the worst weather.

You'll save in many ways with a truck that fits your construction operation—a Dodge "*Job-Rated*" truck. Talk it over with your friendly Dodge dealer *soon!*

How Dodge trucks are "*Job-Rated*" for the construction business

A Dodge "*Job-Rated*" truck is engineered *at the factory* to fit a specific job . . . save you money . . . last longer.

Every unit from engine to rear axle is "*Job-Rated*"—factory-engineered to haul a specific load over the roads you travel and at the speeds you require.

Every unit that SUPPORTS the load—frame, axles, springs, wheels, tires, and others—is engineered right to provide the strength and capacity needed.

Every unit that MOVES the load—engine, clutch, transmission, propeller shaft, rear axle, and others—is engineered right to meet a particular operating condition.

"Job-Rated" TRUCKS DO THE MOST FOR YOU

MANUFACTURERS' PUBLICATIONS

Sanitation engineering equipment—This is a new release, the latest in a series of technical bulletins on sanitation engineering equipment for the municipal sewage and industrial waste fields. Known as Bulletin No. 5102, on Carter Plunger Sludge Pumps, it replaces and revises bulletins Nos. 4502 and 5002.

The 16 pages include detailed information, engineering data and specifications on their complete series of plunger sludge pumps. Pump and motor-selection charts, plus specifications and lubrication data—along with essential data on diaphragm pumps for general duty—make this bulletin a valuable aid to engineering and operating personnel. RALPH B. CARTER COMPANY, 224 ATLANTIC ST., HACKENSACK, N. J.

Threaded bars—A new bulletin entitled "Ryerson Threaded Bar Service" gives data on size range, length, kind of thread, bending, and types and finishes of steel bars that ar furnished threaded. The bulletin also illustrates some of the accessories that are furnished, including turnbackles, nuts, washers and tank lugs. JOSEPH T. RYERSON & SON, INC., BOX 8000-A, CHICAGO 80, ILLINOIS.

Snow Fighting Instruction Bulletin—first anti-snow literature of the season is this 4-page folder which lists equipment requirements, plan of attack, and different methods of clearing for light, normal and deep snows. It also describes the advantages of fast plowing for dispersion and ten points for precaution before the snow flies. Pictures of the Walter Snow Fighter are included, illustrating various blade combinations. WALTER MOTOR TRUCK COMPANY, 1001-19 IRVING AVENUE, RIDGEWOOD, QUEENS, L. I., N. Y.

Weekly Wall Calendar—The Post 1952 calendar has 52 pages with an interesting weekly message on each page. There's also a coupon on each page which, when filled in and mailed, will bring you quotations and/or samples of drafting materials as well as free good-will items such as handy decimal equivalent decals for pasting on a T-square or drawing board, giant conversion and decimal equivalent charts and reminder lists. Dates on this spirally-bound calendar are visible clear across the room and each page also carries a smaller full-month calendar. THE FREDERICK POST COMPANY, DEPARTMENT Z, PO BOX 803, CHICAGO 90, ILLINOIS.

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New industrial building surges as New England offers capital aid

BOSTON — Construction contracts awarded in New England during the first 11 months of 1951 show a 24% increase over the same period last year (See page 91). Since the beginning of the year over a half-billion dollars have been awarded for construction projects.

This climb compares with a drop of 7% in the volume of contracts in the Middle Atlantic States. Even the Far West shows an increase of only 9%. Only the South and Middle West show a greater rise than New England.

Part of the new surge in New England has resulted from rapid amortization certificates and other aids from Washington.

• **Picture bright**—Of the certificates of necessity for construction in New England, about 90% will go toward expansion of finished product facilities. In fact New England has drawn over 8% of the nation's certificates of necessity for finished products.

Certificates of necessity issued to Sept. 20:

1. Connecticut	$134,188,751
2. Massachusetts	51,019,820
3. New Hampshire	12,910,493
4. Maine	9,006,429
5. Vermont	3,120,216
6. Rhode Island	2,182,344

This will extend a trend toward metal-working and allied manufacturing plants, away from shoe and textile plants, that has been in progress for the last three decades or more. In 1919 about 40% of the New Englanders worked in shoe and textile plants. Today, nearly the same percentage is employed in metal working plants.

• **Private venture**—To this new construction can be added the efforts of the New England Council and individual state agencies to put private capital to work.

New England is out to attract new industry with good hard-earned Yankee dollars.

Maine has pioneered with a plan that has the eyes of the region, if not the nation, looking in their direction. The plan started in 1950 with a stock capitalization of $50,000.

It works like this: banking and investment organizations of the state join the Development Corporation of Maine and pledge up to 2½% of their capital and surplus (or its equivalent) as a fund from which the corporation can draw for equity loans to small business. Possible losses to the member corporation are cushioned by a capital stock fund backed up by individuals and nonbank investors.

• **Results seen**—After a year and a half of operation the Corporation has made nineteen loans, claims to have assured 1,700 jobs and aims at a lending power of $1.5 million.

With the Development Corporation gaining strength bigger things are expected in Maine. The trend is definitely up for during the past five years 207 industries have started operation between Kittery and Fort Kent. Another factor that may predict Maine's further industrial growth is its physical character. Maine is a big state with plenty of virgin land 60% of New England's power resources. Chief tie-up in hydro-electric development is the outmoded Fernald Law which prohibits Maine to export power.

• **Joins plan**—New Hampshire picked up Maine's plan for venture financing in September. A New Hampshire Business Development Corporation was set up and started the ball rolling by announcing the sale of 1,000 shares of capital stock at $100 a share. Difference with Maine's plan is that non-members may be subscribers.

Eugene B. Whittemore of Portsmouth, N. H., one of the incorporators, says the group hopes to make some $2 million available to attract new industry.

• **Leader** — Connecticut, tightly pressed for land, leads the area in new construction. In the first year of rapid amortization, she received a "go-ahead" of $134,188,751 for industrial plants.

And United Aircraft will spend $30 million for new plants: One at Windsor Locks and the other at North Haven. The Kaman Aircraft Company plans a $2-million plant at Bloomfield.

Like the other New England states, however, Connecticut is over-stocked with obsolete plants and outdated specialized machinery. Land is at a premium for inviting new industry in, especially under government plans for industrial dispersal.

• **Boom on**—Massachusetts follows second to Connecticut in contracts for industrial expansion. Greater Boston is building industrial plants in what were once residential areas. Big manufacturing plants are going up in West Cambridge, Natick, Framingham, Woburn, West Springfield and other communities. Among biggest building projects are the public utility companies.

Industrial development groups are active in local communities to invite new industry. Under rapid amortization, Massachusetts has received certificates of necessity amounting to over $50 million. And a new Climatic Research Laboratory estimated at $10 million to $15 million will go up soon in Natick.

• **Studies plan**—Vermont hit hardest by the lack of venture capital, recently set up the Vermont Development Commission to study Maine's plan for venture financing. Few new plants have been erected in this area since World War II.

But, since November, fifteen industries opened plants in the state. The Sprague Electric Company moved its Nashua plant to new quarters in the area allowed for expansion. The Hitchiner Company of Manchester is now planning for larger facilities.

• **Keeps pace**—For its size, Rhode Island is keeping abreast of New England's trend of inviting new industry into the northeast. Here's what some of the industries plan to spend in the state for new plants and equipment in 1951: Jewelry manufacturing, $1.9 million; Textile manufacturing, $11.8 million; Machinery plants, $812 million; Rubber goods, $880,431; miscellaneous plants, $15.8 million.

A novel plan in Pawtucket for a projected light industry is underway. Edward T. Dahl, treasurer of Warwick, R. I., Industrial Park, says that ground breaking for the first building of the Manucenter site, a 40,000 sq ft area is expected shortly. Plans for streets, utility services and sites for the various factories will soon follow.

• **On the way**—A new New England is in the making. Diversified industry is moving in and on its heels, a new prosperity. The future is bright for Yankee dollars.

WORKS BOTH ENDS

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Get it done . . . and fast! That's the "word" at the site of U. S. Steel Company's new Fairless Works. And that's the reason James Armour Excavating Company is using two MICHIGAN Truck Cranes to handle and distribute materials at this huge steel mill project.

Here's just one example cited by operator Randall Auer: One of the MICHIGANS transferred pipe from a freight car to a truck, then followed the truck to a spot half-a-mile away where it unloaded the pipe. It then accompanied the empty truck back to the car for another load. The process was repeated until all the pipe had been removed from the car. Only MICHIGAN'S *speed and mobility* made it possible to work both ends of this job with one crane.

When you need an excavator-crane that has everything you want *plus* speed and mobility, investigate MICHIGAN . . . most complete line of ⅜-yard and ½-yard excavator-cranes available. Write for full details.

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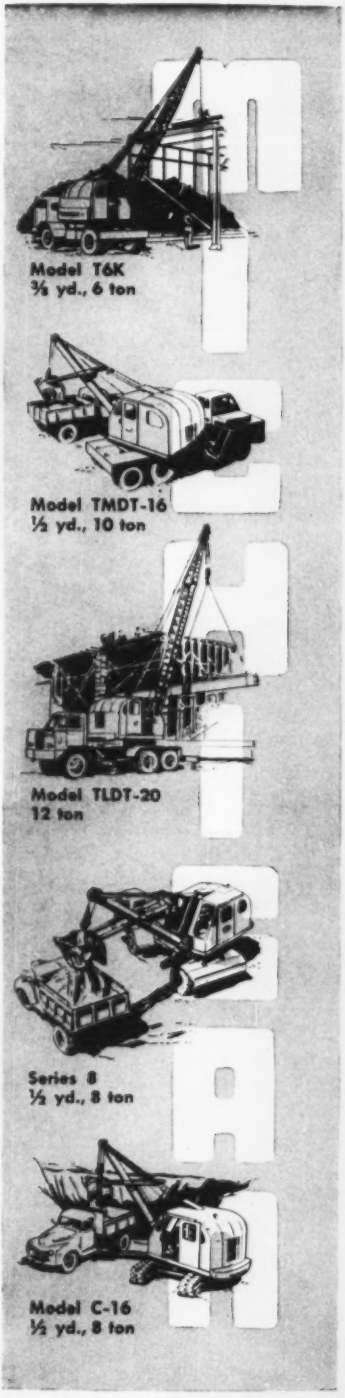


How TIMKEN® bearings help double-drum paver beat time

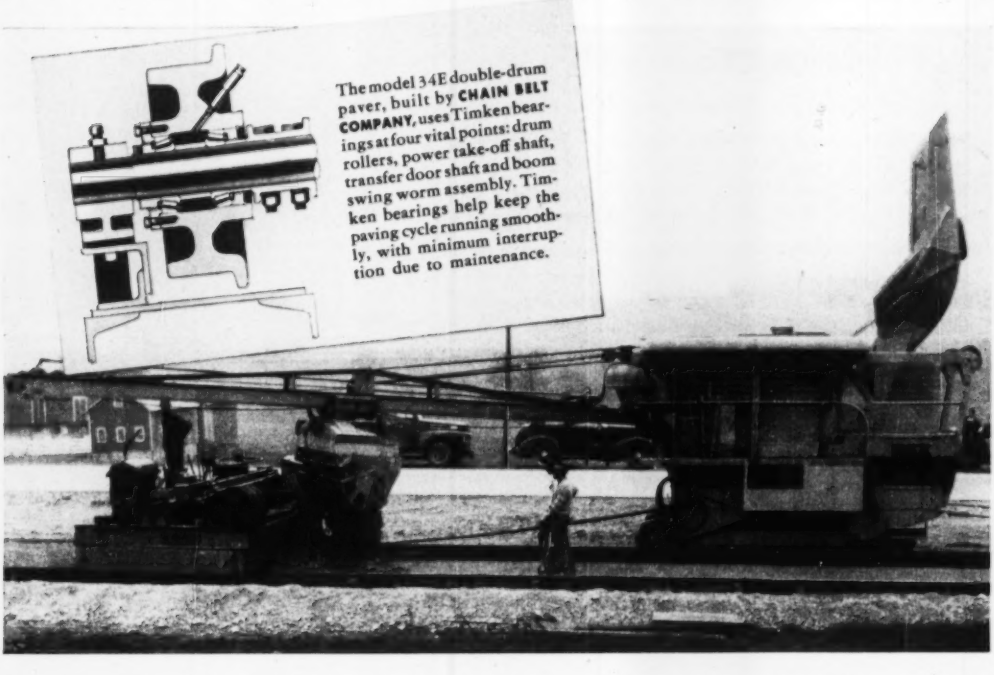
WHEN Chain Belt Company designed their new 34E double-drum paver, they wanted it to be one of the smoothest and fastest operating pavers on the highway. To achieve their aim, one of the things Chain Belt engineers did was to introduce the "hydrocycle"—a hydraulic control system which runs the paving cycle from beginning to end. Another important step toward insuring fast, smooth operation was to mount the big 74.8 cu. ft. capacity double-drum on Timken® tapered roller bearings. Timken bearings carry the heavy loads easily, with a minimum of wear. Maintenance time is reduced. There's less chance of delays on the job.

The paver's power take-off shaft, transfer door shaft and boom swing worm assembly are also mounted on Timken bearings. Due to their tapered construction, Timken bearings carry both radial and thrust loads in any combination. Shafts are held in proper alignment, gears mesh smoothly.

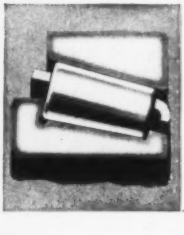
True rolling motion and incredibly smooth surface finish of Timken bearings practically eliminate friction. And because they hold housing and shaft concentric, they make closures more effective. Dirt and dust are kept out; lubricant kept in.

No other bearing can offer all the advantages that Timken bearings have to offer. Specify them for the machinery you buy and for the machinery you build. Look for the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



The model 34E double-drum paver, built by **CHAIN BELT COMPANY**, uses Timken bearings at four vital points: drum rollers, power take-off shaft, transfer door shaft and boom swing worm assembly. Timken bearings help keep the paving cycle running smoothly, with minimum interruption due to maintenance.



GREATER LOAD AREA

Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

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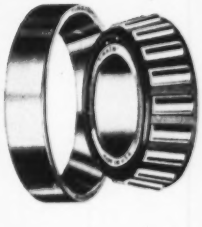
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▱ BEARING TAKES RADIAL ⊙ AND THRUST ⊙ LOADS OR ANY COMBINATION ⊙